

THE CANADIAN GREAT LAKES BASIN

INTAKE OUTFALL ATLAS

(8 Volume Set)

Volume 1

AUGUST 1990

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Ontario

Environment
Environnement

Jim Bradley, Minister/ministre

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CANADIAN GREAT LAKES BASIN

INTAKE - OUTFALL ATLAS

VOLUME 1

LAKE SUPERIOR

by
Kleinfeldt Consultants Limited
AUGUST 1990

M. Griffiths (ed)

Water Resources Branch
ONTARIO MINISTRY OF THE ENVIRONMENT

1990, Her Majesty the Queen in Right of Ontario

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CANADIAN GREAT LAKES BASIN INTAKE/OUTFALL ATLAS

GUIDE TO USE

INTRODUCTION

The Canadian Great Lakes Basin Intake/Outfall Atlas will be used by various public organizations as well as private concerns for water quality assessment studies, pollution control plans, investigation of bacterial pollution problems at bathing beaches and in the formulation of long range management strategies.

The Canadian Great Lakes Basin, Intake Outfall Atlas is composed of eight separate volumes as listed below:

- Volume 1 - Lake Superior
- Volume 2 - St. Marys River
- Volume 3 - Lake Huron/Georgian Bay
- Volume 4 - St. Clair River/Lake St. Clair/
Detroit River
- Volume 5 - Lake Erie
- Volume 6 - Niagara River/Welland Canal/Welland River
- Volume 7 - Lake Ontario
- Volume 8 - St. Lawrence River

For the purposes of this project, questionnaires were sent to appropriate individuals at public and private intake and outfall facilities. Facilities may fall into any one of the industrial categories, or it can be a municipally or provincially operated Water Treatment Plant (WTP) or a Sewage Treatment Plant (STP). Municipalities were also contacted for information regarding various outfalls such as storm, combined, and sanitary sewers that discharge to the Great Lakes System or tributary stream. The bulk of the data were received by Kleinfeldt between December 1986 and June 1987.

A list of Ontario municipal, provincial and private industrial operations was developed using several sources including: IMIS and UMIS listings, from the Water and Wastewater Management Section, Regional Abatement and Utility Officers, Reports from the International Joint Commission, earlier versions of this Atlas, reports and discussions with various individuals. In order to be included in this Atlas identified operations must either discharge effluent (including cooling water and stormwater) to the Canadian Great Lakes or draw water from the the system. These operations must be located within 2 kilometres of the Great Lakes System shoreline. The Great Lakes System includes all Great Lakes within Canadian boundaries as well as the major Interconnecting Channels.

A report summarizing discharging operations and receiving water bodies has been prepared and submitted, under separate cover, to the Great Lakes Section.

USING THE ATLAS

I General Layout

The Atlas begins with Volume 1 representing Lake Superior and ends with Volume 8, representing the St. Lawrence River, thus following a general west to east flow. Mapping of the Great Lakes shoreline is accomplished by using continuous and overlapping hydrographic charts and topographic maps.

Each map contains a legend of symbols for quick reference, an orientation arrow indicating the north direction and a bar scale. When working with each map, check the scale as it may vary between maps.

II Legends

Legends provided on each map are self-explanatory. In the case of shore based effluent pipes, including sewer system outfalls, the arrowhead indicating outfall location is on the land side of shoreline. Similarly shore based intakes have their location indicators on the water side of the shoreline. Thus, location indicators also illustrate direction of flow through any given pipe. In some situations, because of pipe length and available map scale, offshore effluent and water intake pipes have been illustrated as shore based, however, consultation with the facing data page will give exact data on length of pipe from shore.

III Maps

Each map is numbered and is accompanied by a data page. Information on industrial, provincial or municipal intake or outfall structures within a map's borders is detailed on the data page. All intakes and outfalls, (excluding sewer system outfalls) have a numerical designation located as close to the actual structure as possible. These numerical designations begin at one (1) for each map, and relate to the "Structure Number" category on each data page. Although limited to descriptions of seven (7) structures per page there can be more than one data page relating to a simple map.

IV General

If a particular structure appears in the area of overlap between two maps the structure will be presented on one map only. However, where there is map duplication (i.e. between volumes) the structures will be mapped and data presented in both volumes.

Water and sewage treatment operations are listed by plant name. The Atlas user should refer to the location category in the data tables for identification of plant location. The abbreviations WPCP and STP describe sewage treatment operations and are assigned to an operation based on MOE designations.

V Lists of Operations:

In order to assist the user in locating the required information on a particular operation, we recommend that the user begin with our lists given below. Please note, these lists do not include municipal jurisdictions that provided sewer/drainage system information only.

Table 1: Listing of all operations that have major intake/outfall structures mapped and tabulated in the Atlas. Does not include municipal sewer/drainage outfalls.

Table 2: Listing of all operations within a given volume and a corresponding index.

Table 3: Listing of industrial operations not responding to the questionnaire (Information was subsequently supplied by the MOE).

VI Abbreviations:

Before using the Atlas it is recommended the user be familiar with the abbreviations presented in Table 4.

VII Explanation of Data Tables:

Table 5 provides a brief explanation of each information category to improve the clarity for the user.

Acknowledgments

The Canadian Great Lakes Basin Intake/Outfall Atlas was compiled by Kleinfeldt Consultants Limited, and with the assistance of the Great Lakes Section of the Ontario Ministry of the Environment's Water Resources Branch.

Kleinfeldt Consultants wishes to thank Mrs. Marta Griffiths of the MOE's Great Lakes Section for her time and patience exhibited throughout the course of this project.

We also acknowledge the efforts of Ministry of the Environment personnel, in the Great Lakes Section, as well as, Regional and District Offices who took the time and made the effort to review the data and maps contained in the Atlas, and provided comments, suggestions and additional information. Their efforts have allowed us to improve the document and hence the overall utility of the Atlas.

Kleinfeldt Consultants would also like to take this opportunity to thank the individuals in the ministry, local municipality and industry that provided information on 500 plus operations included in this Atlas. Without the cooperation and timely responses from the majority of contacts, this project would not have been a success.

Disclaimer

The information contained in this Atlas is as accurate as the information supplied in the completed and returned questionnaires. Due to the nature of the data collection, Kleinfeldt Consultants Limited is not responsible for erroneous information supplied by any one of the 400 plus operations.

Table 1

ALL OPERATIONS INCLUDED IN THE ATLAS

Lake Superior	St. Marys River	Lake Huron/Georgian Bay	St. Clair System	Lake Erie	Welland Canal/Niagara R.	Lake Ontario	St. Lawrence River
Abitibi Price Inc.	Algoma Steel Corp.	Blind River STP	Amherstburg WPCP	Amherstburg WPCP	Anger Ave. WPCP	Ajax WTP	BCL
Abitibi Price T.Bay Div.	Sault. Ste. Marie WPCP(1)	Brights Grove STP	Amherstburg WSS	Blenheim WSS	Atlas Specialty Steels	Amherstveiw WSS	Brockville WPCP
Canada Malting Co.	Sault. Ste. Marie WPCP(2)	Bruce A NGS	Belle River WPCP	Can. Haldiman Norfolk WSS	B.F. Goodrich Canada	Bakelite Thermosets	Brockville WTP
Domtar Packaging Ltd.	Sault. Ste. Marie WTP(1)	Bruce B NGS	Belle River WTP	Crystal Beach WPCP	Canadian Oxy-Chemicals	Baker Road WPCP	Cardinal WPCP
James River-Marathon Ltd.	Sault. Ste. Marie WTP(2)	Bruce Heavy Water Plant	Canadian Liquid Air	Crystal Beach WTP	Casco Company	Bath WPCP	Cardinal WTP
Kimberly Clark Can. Ltd	St. Marys Paper Inc.	Bruce Mines STP	Canadian Salt Co. (1)	Dunville WTP	Cyanamid N. Falls Plant	Bath WTP	Casco Company
Marathon STP	Union Carbide Canada Ltd.	Bruce Mines WTP	Canadian Salt Co. (2)	Elgin Area WSS	Cyanamid Welland Plant	Beamsville WTP	Charlottenburgh TWP. WTP
Nipigon STP		CIL /McDougall TWP	Chinnok Chemical Co.	Erieau Erie Beach WSS	Domtar Fine Papers	Belleville WPCP	Cornwall WPCP
Nipigon WTP		Collingwood WPCP	CIL Inc. Lampton Works	Harrow Colchester WSS	Electro Minerals(CAN)Inc.	Belleville WTP	Cornwall WTP
Northern Wood Preservers		Collingwood WTP	Corunna WPCP	H. J. Heinz Co.	Fleet Manufacturing Co.	Biggar Lagoon	Courtaulds Ltd.
Pancake Bay Prov. Park		Domtar Inc. Sifto Salt	Courtright WPCP	Inco Metals Inc.	Ford Motor Co.	Borg-Warner Chemicals	Domtar Fine Paper
Provincial Paper Division		Douglas Point NGS	Dow Chemical Canada Ltd.	Int. Min. & Chemicals	Fort Erie North Pump Stn.	Bowmanville WTP #1	Dupont Canada
Red Rock WPCP		Eldorado Resources Ltd.	DuPont Canada Inc.	Kent County WSS	Fort Erie South Pump Stn.	Bowmanville WTP #2	Edwardsburg WPCP
Red Rock WTP		Goderich WPCP	Edgewater Beach WPCP	Leamington WPCP	General Motors of Can.Ltd	Brighton STP	Gananoque Lagoon
Rosspoint WTP		Goderich WTP	Esso Petroleum Canada	Nanticoke TGS	Hayes Dana Dr. Train Div.	Burlington WTP	Gananoque WTP
Schreiber STP		Goodyear Canada Inc.	Ethyl Canada Inc.	Omstead Foods Ltd.	Holiday Farms	Canada Cement Lafarge Ltd	Iroquois STP
Schreiber WTP		Goodyear Canada Inc.	Fiberglass Canada Inc.	Port Burwell WPCP	Inco Metals Ltd.	Canada Malting Co. Ltd.	Iroquois WTP
Thunder Bay TGS		Gore Bay WPCP	Ford Motor Co. of Can.Ltd	Port Dover WPCP	Kimberly Clark Of Canada	Canadian Vegetable Oil	Kingston (City) WPCP
Thunder Bay WPCP		Gore Bay WTP	General Chemical	Port Dover WTP	Niagara Falls WTP	Canron Inc.	Kraft Foods Ltd.
Thunder Bay WTP		Grand Bend STP	General Motors of Canada	Port Rowan WPCP	Niagara-on-the-Lake STP	Celanese Canada Inc.	Long Sault WPCP
		Kilbear Provincial Park	Hiram Walker & Sons Ltd	Port Rowan WTP	Niagara-on-the-Lake WTP	CFB Mountainveiw WTP	Long Sault WTP
		Kincardine WPCP	J. C. Keath TGS	Port Stanley WTP	Norton Co.	CFB Trenton WPCP	Marimac Inc.
		Kincardine WTP	Lampton County WSS	Port Stanley STP	Ontario Paper Co.	Chrysler Canada Ltd.	Morrisburg WPCP
		Lake Huron WSS	Lampton TGS	Raliegh TWP STP	Ontario Power Co.	Clarkson WPCP	Morrisburg WTP
		Lions Head WTP	Little River WPCP	Rock Pt. Provincial Park	Port Weller WPCP	Cobourg STP #1	Nitrochem Inc.
		Little Current WTP	Mitchells Bay WPCP	Romney WPCP	Seaway WPCP	Cobourg STP #2	Osnabruck TWP WPCP
		McGregor Point Prov. Park	Mitchells Bay WTP	Rosehill WTP	Sir Adam Beck #1 HGS	Cobourg WTP	Osnabruck TWP WTP
		Meaford WPCP	Novacor Chemicals	Selkirk Provincial Pk.	Sir Adam Beck #2 HGS	Corbett Creek WPCP	Phillips Cables
		Meaford WTP	Petrosar Corunna	Stelco Inc. Erie Works	Stampford/Niagra STP	Darlington NGS	Prescott WTP
		Midland WPCP	Point Edward WPCP	Texaco Canada Inc.	Stelco Inc. Page Hersey	Deseronto WPCP	Richmond Die Casting Ltd.
		Mitsubishi Electronics	Polysar Ltd.	Turkey Pt. Provincial Pk.	Stelco Inc. Welland Tube	Deseronto WTP	River St. Pumping St
		Owen Sound WPCP	Port Lampton WPCP	Union Gas Ltd.	Stevensville Lagoon	Dofasco Inc.	Rohm & Hass Canada Inc.
		Owen Sound WTP	Sarnia WPCP	Union WSS	Union Carbide Canada Ltd.	Domtar Packaging	
		Parry Sound WTP	Shell Canada Ltd.	West Lorne WTP	Welland WPCP	Domtar Wood Preserving	
		Penetanguishene WPCP	Sombra WPCP	Wheatly WTP	Welland WSS	Duffins Creek WPCP	
		Penetang. Hospital STP	Stoney Point WPCP			DuPont Canada Ltd.	
		Petrolia WTP	Sunoco Inc.			Easterly Filtration Plant	
		Port Elgin WTP	The Segrain Co. Ltd.		West Side WPCP	Eldorado Resource Ltd.(1)	
		Port McNicoll STP	Tilbury North WSS			Eldorado Resource Ltd.(2)	
		Port McNicoll WTP	Tilbury WTP			Eldorado Resource Ltd.(3)	
		Rio Algom Ltd.	Wallaceburg WPCP			Elizabeth Gardens PS	
		Southampton WPCP	Wickes Bumper Co. Ltd.			E.D. Smith Limited	
		Southampton WTP	Windsor PUC WTP			Ford Motor Co. of Can.Ltd	
		Standard Aggregates Inc.	Windsor Tecumseh WTP			General Motors of Canada	
		Thessalon Pump House	Windsor WPCP			Goodyear Canada	
		Thessalon STP				Graham Creek WPCP	
		Thornbury WPCP				Griesby WTP	
		Thornbury WTP				Hamilton Wentworth WPCP	

ALL OPERATIONS INCLUDED IN THE ATLAS

[illegible]

Table 1

ALL OPERATIONS INCLUDED IN THE ATLAS

Lake Superior	St. Marys River	Lake Huron/Georgian Bay	St. Clair System	Lake Erie	Welland Canal/Niagara R.	Lake Ontario	St. Lawrence River
						South East WPCP South West WPCP Stelco Inc Parkdale Works Stelco Inc. St. Lawrence Cement St. Lawrence Starch Co. St. Marys Cement Co. Texaco Canada Inc. (1) Texaco Canada Inc. (2) Trenton WPCP Trenton WTP TWP of Etobicoke STP Union Carbide Can. Ltd. Victory Soya Mills Vineland WTP Waupoos Canning Co. Ltd. Wellington Mushroom Farm Wellington WPCP Whitby WTP	

Table 2

OPERATIONS INCLUDED IN VOLUME 1
LAKE SUPERIOR

Operation	Map Number

Abitibi Price Inc.	2
Abitibi Price T.Bay Div.	4
Canada Malting Co.	3
Domtar Packaging Ltd.	6
James River-Marathon Ltd.	15
Kimberly Clark Can. Ltd	10
Marathon STP	14
Nipigon STP	8
Nipigon WTP	8
Northern Wood Preservers	3
Pancake Bay Prov. Park	18
Provincial Paper Division	4
Red Rock WPCP	6
Red Rock WTP	6
Rosspoint WTP	11
Schreiber STP	10
Schreiber WTP	10
Thunder Bay TGS	2
Thunder Bay WPCP	3
Thunder Bay WTP	4

Table 3

INDUSTRY NOT RESPONDING TO QUESTIONNAIRE

INFORMATION OBTAINED FROM MOE

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*****
Name of Operation      Location      Comments
*****
Arrowhead Metals      Toronto      No applicable intake or outfall structures
BCL                   Cornwall     From Southeast Regional Office
Courtaulds            Cornwall     From Southeast Regional Office
Domtar Construction Materials Thorold      From Welland District Office
Domtar Wood Preservers Trenton       From Southeast Regional Office
Du Pont               Corunna      From Southwest Regional Office
Du Pont               Kingston     From Southeast Regional Office
Du Pont               Whitby       No applicable intake or outfall structures
Du Pont               Maitland     From Southeast Regional Office
Esco Ltd.             Whitby       No applicable intake or outfall structures
Fittings Ltd.         Whitby       No applicable intake or outfall structures
Ford Motor Co. of Canada Essex Engine Plant No applicable intake or outfall structures
Ford Motor Co. of Canada Windsor Engine Plant From Southwest Regional Office
General Chemicals      Sombra       From Southwest Regional Office
Holiday Farms          Niagara Falls From Welland District Office
Kraft Ltd.             Williamstown No applicable intake or outfall structures
Kraft Ltd.             Wolfe Island No applicable intake or outfall structures
Kraft Ltd.             Ingleside    From Southeast Regional Office

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Table 4

LIST OF ABBREVIATIONS

CEN	Central	
CFB	Canadian Forces Base	
CSO	Combined Sewer Overflow	
DND	Department of National Defence	
EO	Emergency Overflow	
IND	Industrial Operation	
MGS	Ministry of Government Services	
MNR	Ministry of Natural Resources	
MOE	Ministry of the Environment	
MUN	Municipal Operation	
NA	Not Available	
NGS	Nuclear Generating Station	
P Removal	Phosphorus Removal	
PP	Provincial Park	
PS	Pumping Station	
PUC	Public Utilities Commission	
RM	Regional Municipality	
S	Sanitary Sewer Overflow	
SS	Storm Sewer	
STP	Sewage Treatment Plant (same as WPCP)	
TGS	Thermal Generating Station	
TWP	Township	
UV	Ultra-Violet	
WPCP	Water Pollution Control Plant (same as STP)	
WSS	Water Supply System	
WTP	Water Treatment Plants	

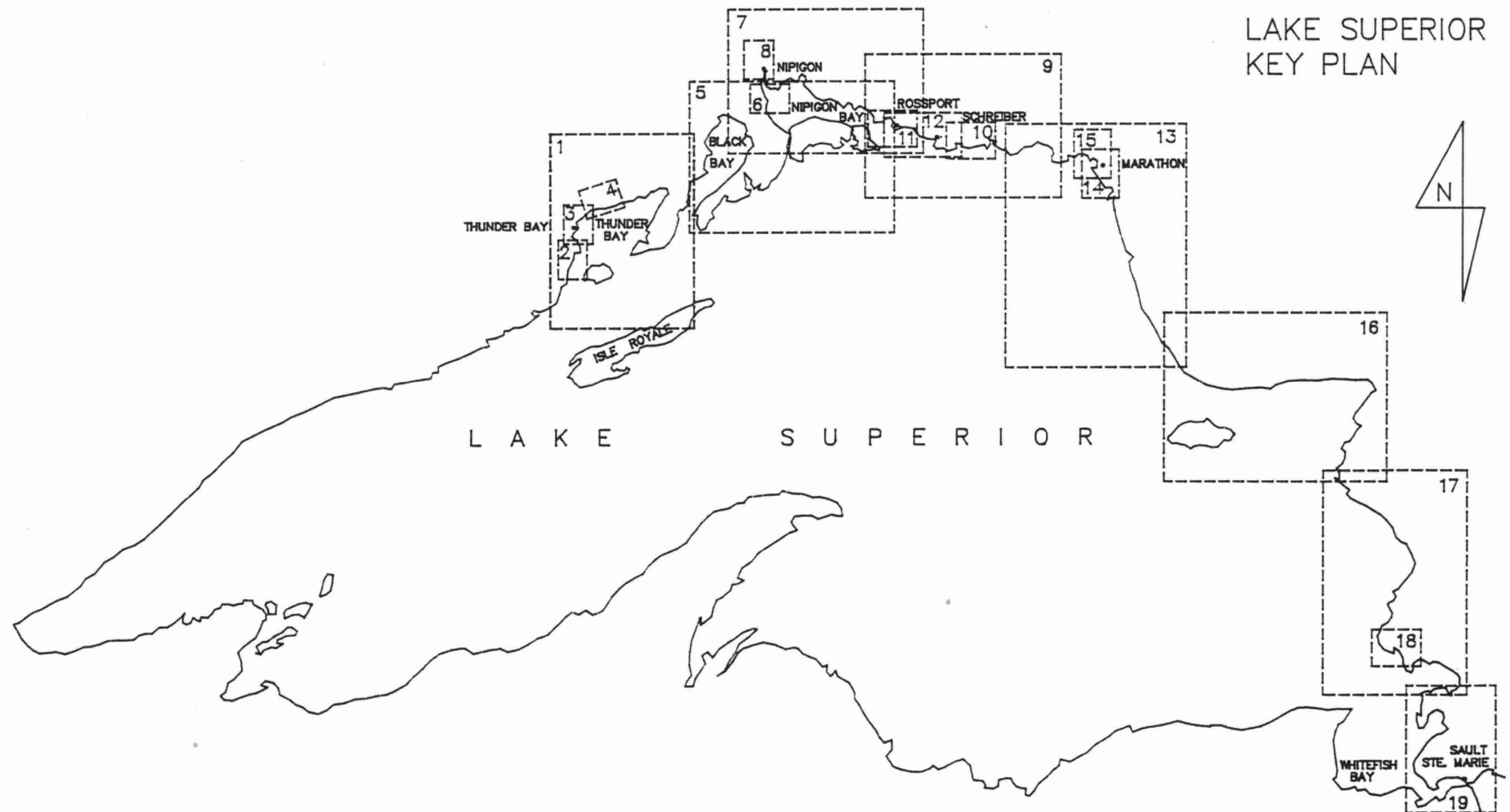
TABLE 5

EXPLANATION OF DATA TABLES

Name of Operation:	Name of municipality or industry
Intake/Outfall:	Indication of Use of pipe
UMIS/IMIS No.:	Number in the Ministry's Utility Monitoring Information System and Industrial Monitoring Information System from which other data can be obtained.
Structure No.:	Indicates structures on the accompanying map.
Map No.:	Indicates map on which the structure can be located.
Operating Authority:	Identifies who owns or has jurisdiction over the facility i.e. Industry, MOE, MNR, MUN, PUC, MGS, etc.
Location:	Identifies where the facility and accompanying structures are located (usually indicated by as City, Town or Township).
Supplier/Receiver:	Identifies the water body that wither supplies water to a facility via the intake, or receives effluent via the outfall.
Point of Discharge:	Applies to outfalls only. Indicates location of discharge i.e. shore (0-99 m from shoreline), offshore ($\geq$ 100m for shoreline), harbour, embayment, river mouth (0-2 km upstream from lake).
Terminal Basin:	Lake or river basin, from which water is drawn or effluent discharged to
Activity:	General categorization of a particular facility (eg. Steel Production, Municipal Water Treatment, etc.)
Process Type:	Description of activity (eg. Major phases of Steel production, Physical and Chemical Treatment, Secondary Treatment, etc.)
Supply/Discharge Type:	Description of how water is drawn in, or effluent discharged (eg. Continuous, Batch Seasonal, etc.)

Treatment Type:	Description of how water and/or effluent is treated before use/before discharge. Indication of major steps in treatment, if any.
Comments:	Any other remarks relating to the operation, its intakes or outfalls, process or treatment activities, such as plant closures, future modifications, relationship with nearby operations, etc;
Design Flow:	Quantity (in 1,000 m ³ /day) of water can be drawn in via intake or discharged via outfall according to design specifications.
Mean Annual Flow:	Quantity (in 1,000 m ³ /day) on the average, of water can be drawn in via intake or discharged via outfall according to design specifications.
Pipe Length from Shore:	Length of intake/outfall pipe from shore, given in metres.
Pipe Diameter:	Given in centimeters. If pipe is rectangular or oval in shape, the largest dimension is given.
Water Depth at End of Pipe:	Depth of water, in metres, at the end of the pipe.
Water Depth above End of Pipe:	Depth of water, in metres, above the end of the pipe.
Diffuser:	Applies to outfall structures only. Indicates if an effluent diffusing structure is present on the outfall.
Number of Ports:	If diffuser is present on the outfall an indication is given to the number of ports in the diffusing structure.

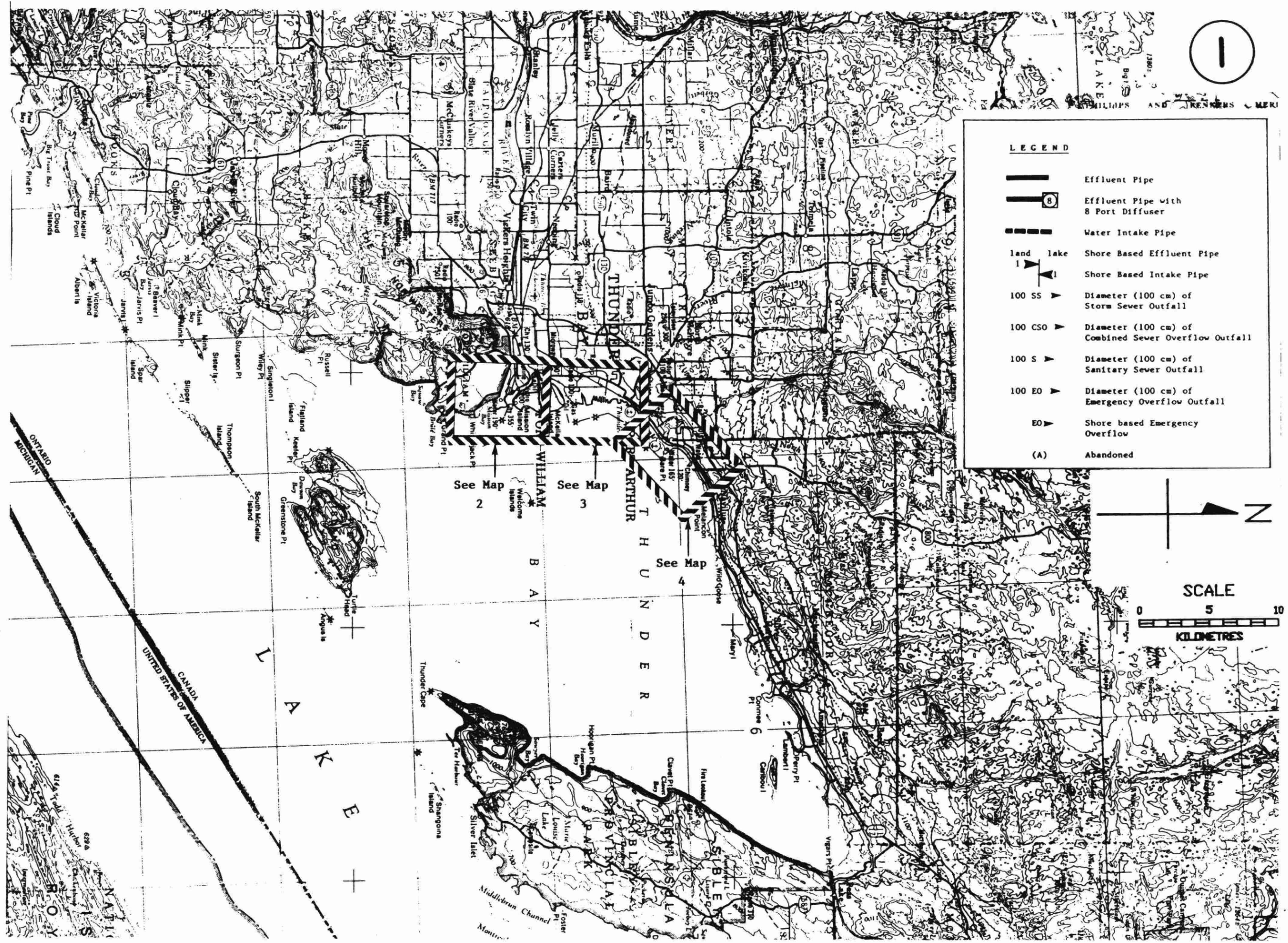
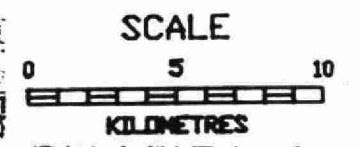
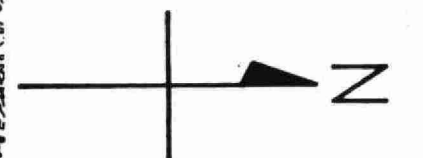
KEY PLAN



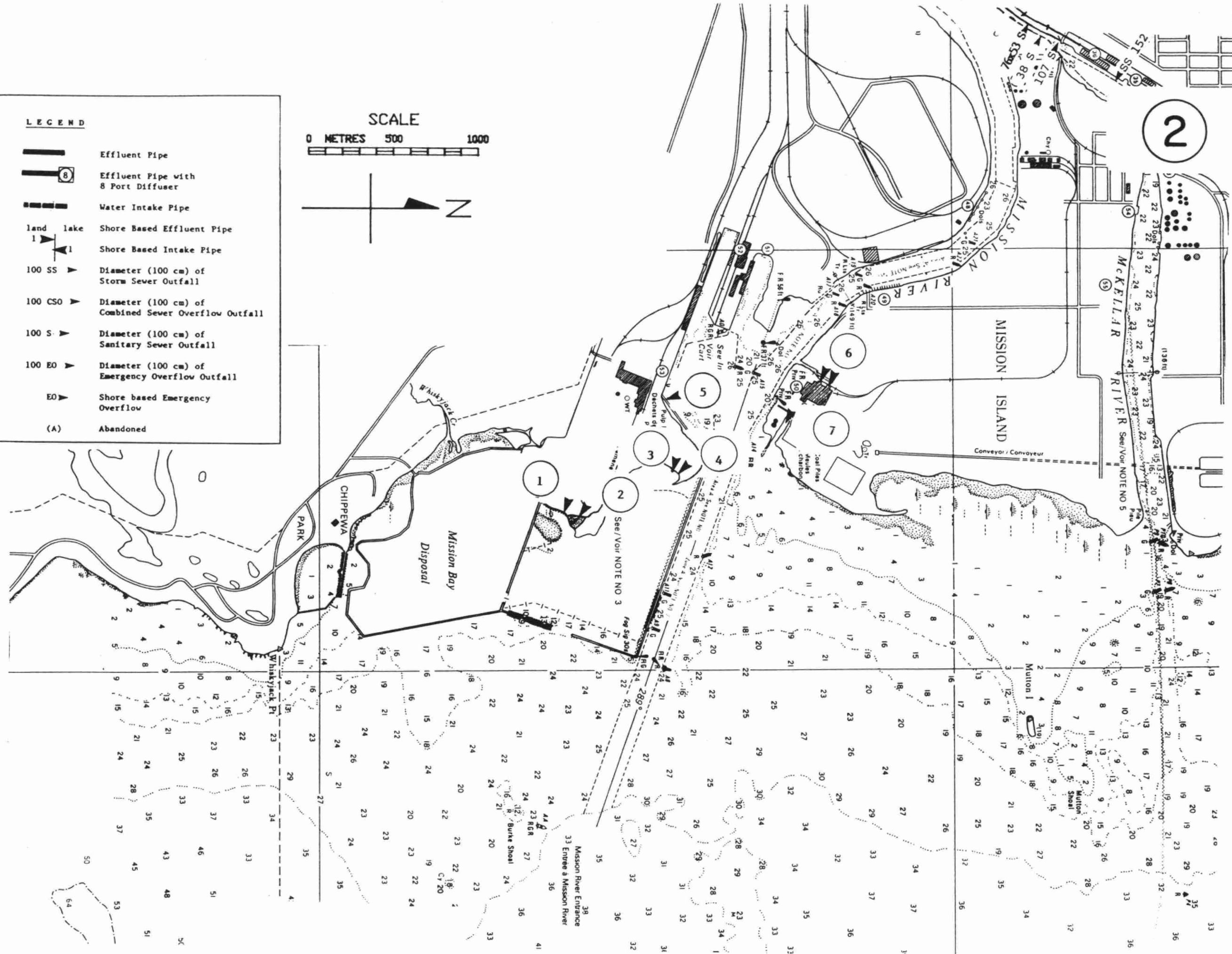
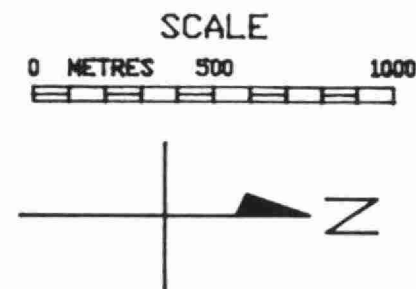
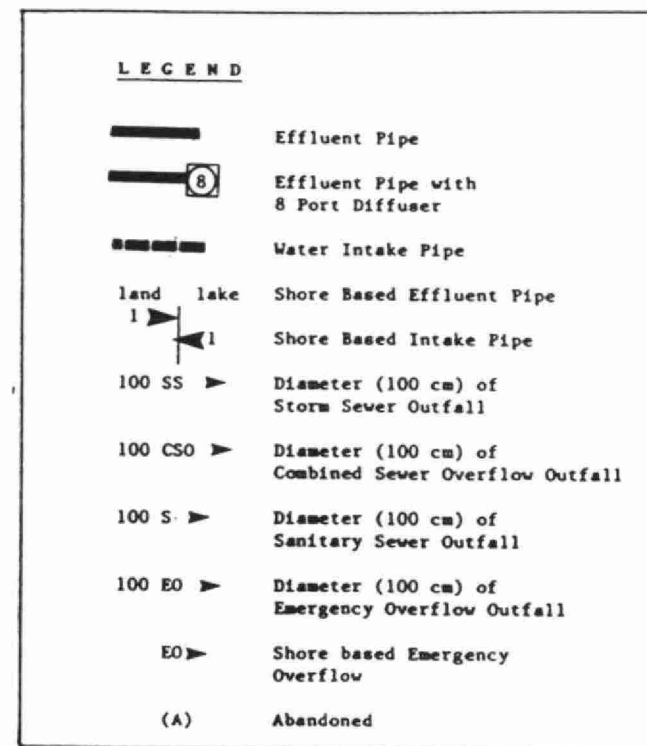


LEGEND

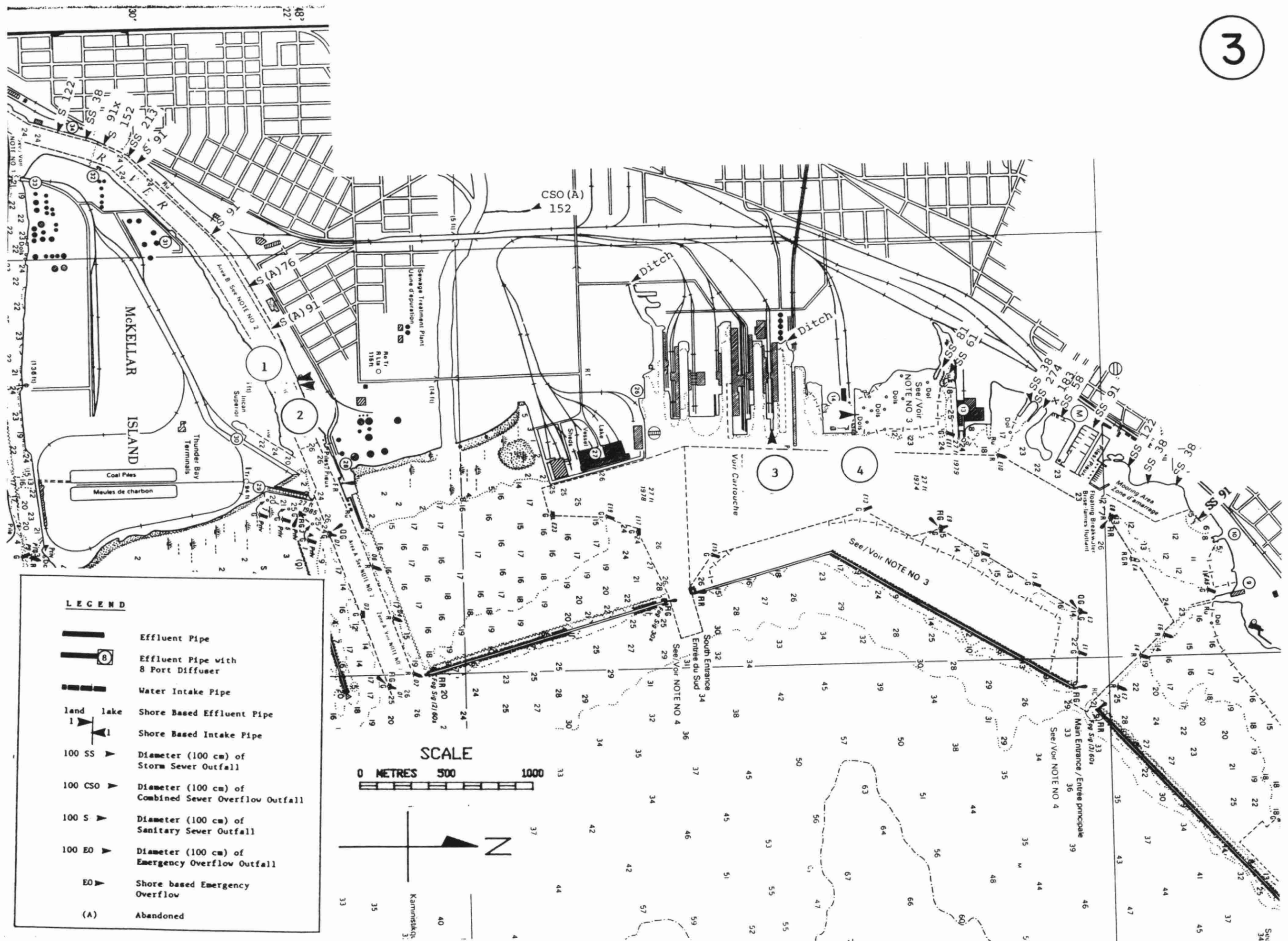
- Effluent Pipe
- Effluent Pipe with 8 Port Diffuser
- Water Intake Pipe
- Shore Based Effluent Pipe
- Shore Based Intake Pipe
- Diameter (100 cm) of Storm Sewer Outfall
- Diameter (100 cm) of Combined Sewer Overflow Outfall
- Diameter (100 cm) of Sanitary Sewer Outfall
- Diameter (100 cm) of Emergency Overflow Outfall
- Shore based Emergency Overflow
- Abandoned



Name	Abitibi Price Inc.	Abitibi Price Inc.	Abitibi Price Inc.	Abitibi Price Inc.	Abitibi Price Inc.	Thunder Bay TGS	Thunder Bay TGS
Intake/Outfall	Pt. William Outfall	Pt. William Outfall	Pt. William Outfall	Pt. William Outfall	Pt. William Intake	Intake	Outfall
UMIS/IMIS No.	000086205	000086205	000086205	000086205	000086205	NA	NA
Structure No.	1	2	3	4	5	6	7
Map Number	2	2	2	2	2	2	2
Operating Authority	IND	IND	IND	IND	IND	Ontario Hydro	Ontario Hydro
Location	Thunder Bay	Thunder Bay	Thunder Bay	Thunder Bay	Thunder Bay	Thunder Bay	Thunder Bay
Supplier/Receiver	Thunder Bay	Thunder Bay	Thunder Bay	Thunder Bay	Mission River	Mission River	Thunder Bay
Point of Discharge	Embayment	Embayment	Embayment	Embayment			Shore
Terminal Basin	Lake Superior	Lake Superior	Lake Superior	Lake Superior	Lake Superior	Lake Superior	Lake Superior
Activity	Newsprint Manufacture	Newsprint Manufacture	Newsprint Manufacture	Newsprint Manufacture	Newsprint Manufacture	Electric Power Generation	Electric Power Generation
Process Type	Wood Debarking	Wood Debarking	Mechanical & Chemical Pulping	Mechanical & Chemical Pulping	Physical and Chemical Treatment	Coal Fired Thermal Generation	Coal Fired Thermal Generation
Supply/Discharge Type	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous
Treatment Type	Settling Lagoons	Settling Lagoons	Settling Lagoons	Settling Lagoons	Coarse Screened Chlorination	Bar Racks & Vertical Travelling Screens	Bar Racks & Vertical Travelling Screens
Comments	Weir overflows into Channel to embayment area Wood Debarking	Abandoned Channel to embayment area Wood Debarking	Weir overflows into Channel to embayment area	Weir overflows into Channel to embayment area		Once Through Cooling Water	Once Through Cooling Water
Design Flow (1000m3/day)	NA	NA	NA	NA	87.00	2073.60	2073.60
Mean Annual Flow (1000m3/day)	3.45	3.45	11.52	9.19	24.00	724.00	724.00
Pipe length from shore (m)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pipe Diameter (cm)	Weir width 152	Weir width 152	Weir width 488	0.00	122.00	760.00	1220.00
Water Depth at end of pipe (m)	0.00	0.00	0.00	0.00	6.00	4.60	3.70
Water depth above end of pipe (m)	0.00	0.00	0.00	0.00	2.00	NA	NA
Diffuser	NO	NO	NO	NO			NO
Number of ports							

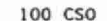


Name	Thunder Bay WPCP	Thunder Bay WPCP	Canada Malting Co.	Northern Wood Preservers		
Intake/Outfall	Outfall	Outfall	Intake	Outfall		
UMIS/INIS No.	120004805	120004805	NA	NA		
Structure No.	1	2	3	4		
Map Number	3	3	3	3		
Operating Authority	MUN	MUN	IND	IND		
Location	Thunder Bay	Thunder Bay	Thunder Bay	Thunder Bay		
Supplier/Receiver	Kaministiquia River	Kaministiquia River	Lake Superior	Thunder Bay		
Point of Discharge	River Mouth	River Mouth		Harbour		
Terminal Basin	Lake Superior	Lake Superior	Lake Superior	Lake Superior		
Activity	Municipal Sewage Treatment	Municipal Sewage Treatment	Processing of food and related products	Wood Preservation		
Process Type	Primary Treatment	Primary Treatment	Malt Manufacturing	Creosote and Pentachlorophenols		
Supply/Discharge Type	Continuous	Continuous	Continuous	Continuous		
Treatment Type	Anaerobic digestion Sludge Disposal P Removal-Continuous	Anaerobic digestion Sludge Disposal P Removal-Continuous	Filtration Chlorination	Secondary Treatment Activated Sludge		
Comments	Gravity Flow Outfall Tunnel	Emergency Backup Discharge		Large Blending tanks are used to equalize flows		
Design Flow (1000m3/day)	109.00	109.00	1.64	0.01		
Mean Annual Flow (1000m3/day)	113.96	113.96	1.64	0.01		
Pipe length from shore (m)	0.00	0.00	20.00	0.00		
Pipe Diameter (cm)	274.00	106.00	25.40	15.00		
Water Depth at end of pipe (m)	2.75	2.75	6.00	3.00		
Water depth above end of pipe (m)	NA	NA	6.00	0.50		
Diffuser	YES	YES		NO		
Number of ports	Sheet Pile Diffuser	Sheet Pile Diffuser				

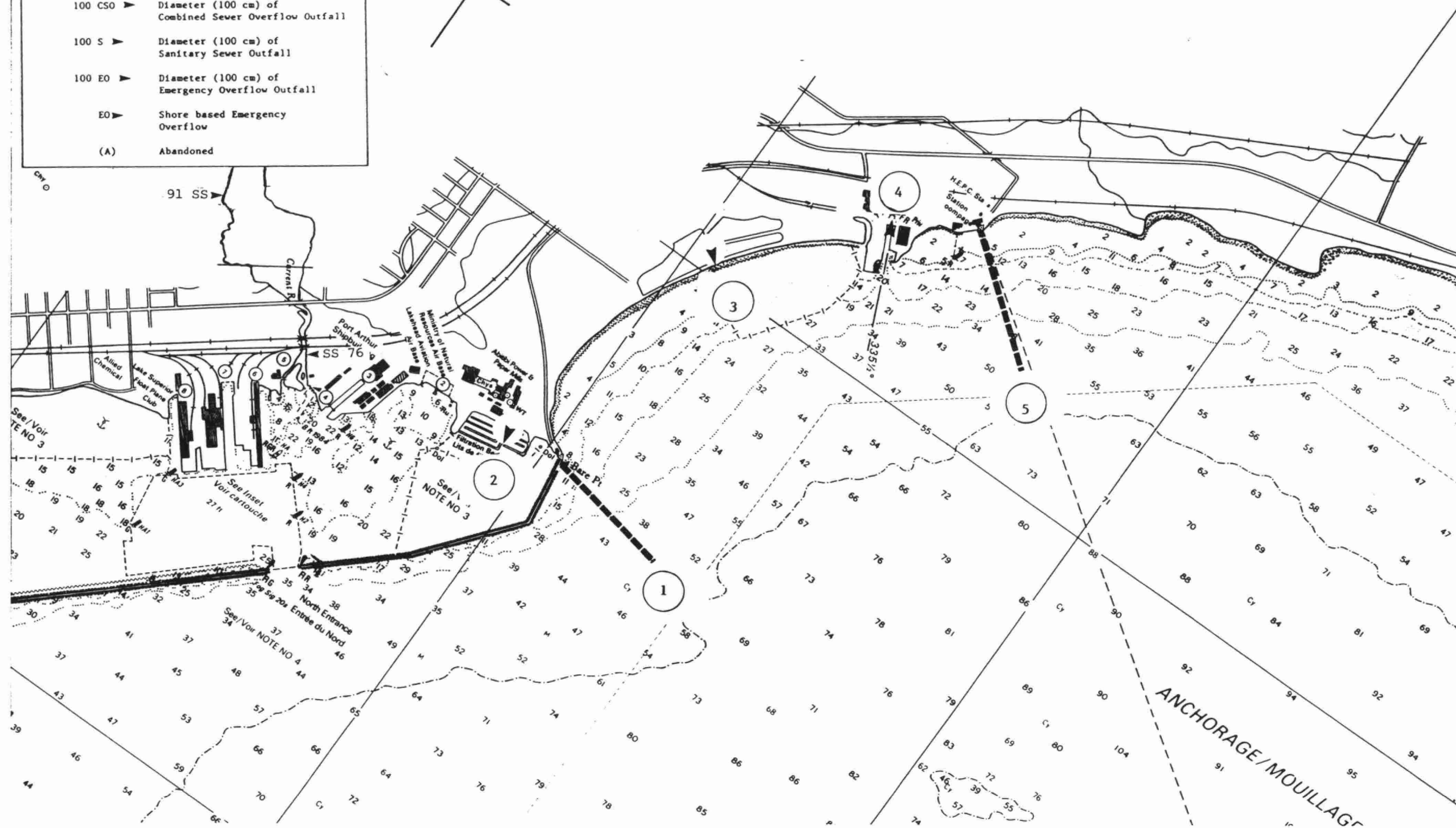
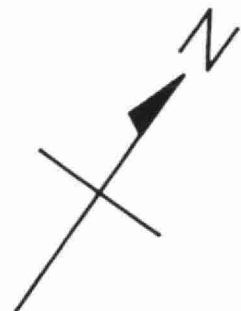


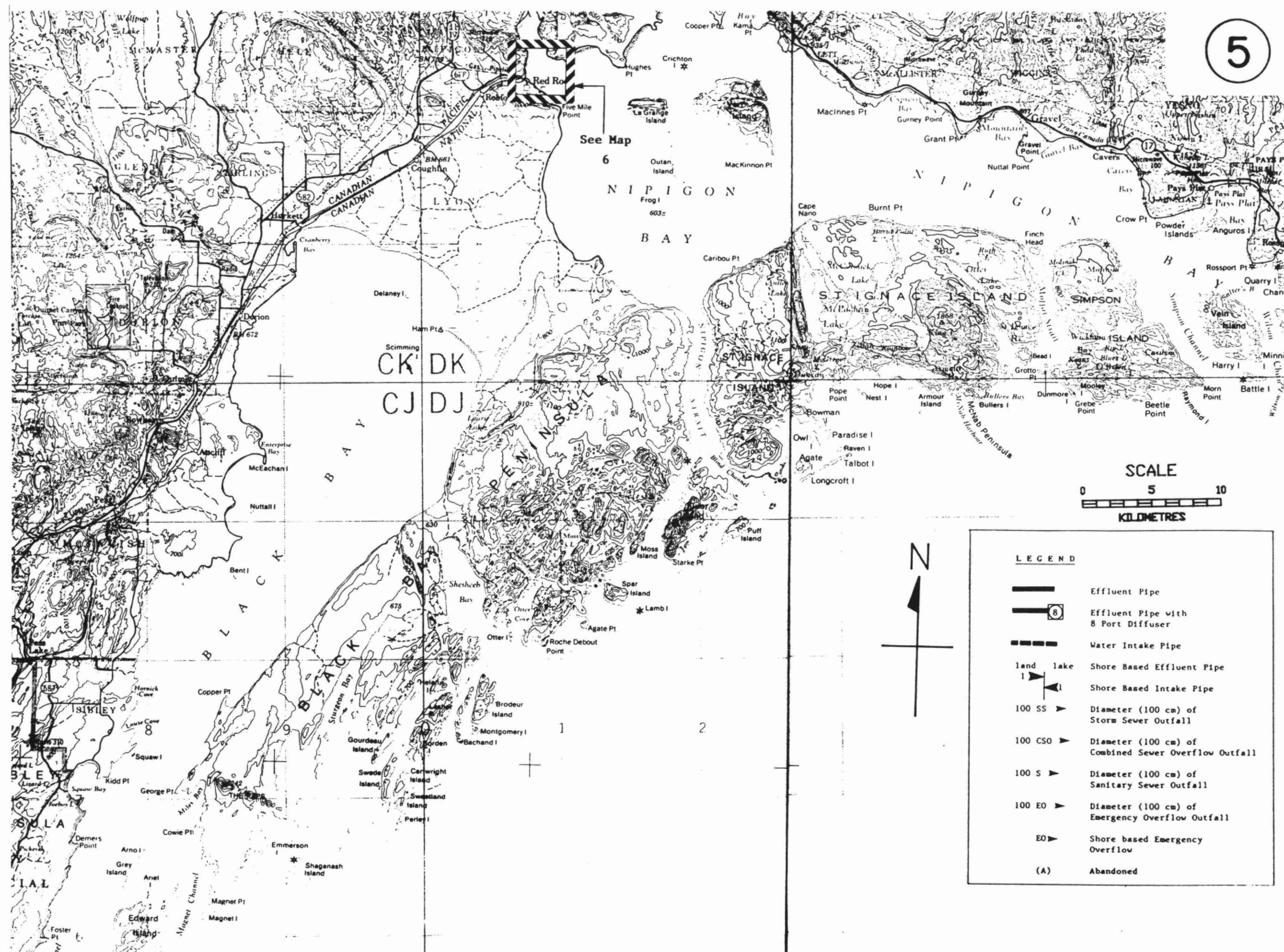
Name	Provincial Paper Division	Provincial Paper Division	Abitibi Price T.Bay Div.	Abitibi Price T.Bay Div.	Thunder Bay WTP	
Intake/Outfall	Intake	Outfall	Outfall	Intake	Intake	
UMIS/INIS No.	000086106	000086106	0000860007	0000860007		
Structure No.	1	2	3	4	5	
Map Number	4	4	4	4	4	
Operating Authority	IND	IND	IND	IND	MUN	
Location	Thunder Bay	Thunder Bay	Thunder Bay	Thunder Bay	Thunder Bay	
Supplier/Receiver	Thunder Bay	Inner Harbour	Thunder Bay	Thunder Bay	Lake Superior	
Point of Discharge		Harbour	Shore			
Terminal Basin	Lake Superior	Lake Superior	Lake Superior	Lake Superior	Lake Superior	
Activity	Pulp and Paper Production	Pulp and Paper Production	Pulp and Paper Production	Pulp and Paper Production	Municipal Water Treatment	
Process Type	Mechanical Pulping	Mechanical Pulping	Conversion of logs into	Conversion of logs into	Physical and Chemical	
	Papermaking and Coatings	Papermaking and Coatings	paper via stoneground &	paper via stoneground &	Treatment	
			sulphate process	sulphate process		
Supply/Discharge Type	Continuous	Continuous	Continuous	Continuous	Continuous	
Treatment Type	Chlorination for Potable	Lagoon & Clarifier	Primary Lagoons and	Coarse Screening	Direct Filtration	
	and Industrial uses.		Clarifier	& Breakpoint Chlorination	Chlorination	
Comments		Discharge via a weir	Discharge by surface	Freshwater industrial	Gravity Feed Intake, New	
			channel	intake located at bottom	122 cm intake is proposed	
				of boat slip	for early 1990's.	
Design Flow (1000m3/day)	113.50	113.50	55.00	60.00	90.92	
Mean Annual Flow (1000m3/day)	47.20	47.20	38.70	38.50	36.00	
Pipe length from shore (m)	648.30	0.00		0.00	731.00	
Pipe Diameter (cm)	121.90	487.70	NA	200.00	60.00	
Water Depth at end of pipe (m)	14.77	NA	NA	8.00	22.00	
Water depth above end of pipe (m)	13.23	NA	NA	6.00	8.00	
Diffuser		NO	NO			
Number of ports						

LEGEND

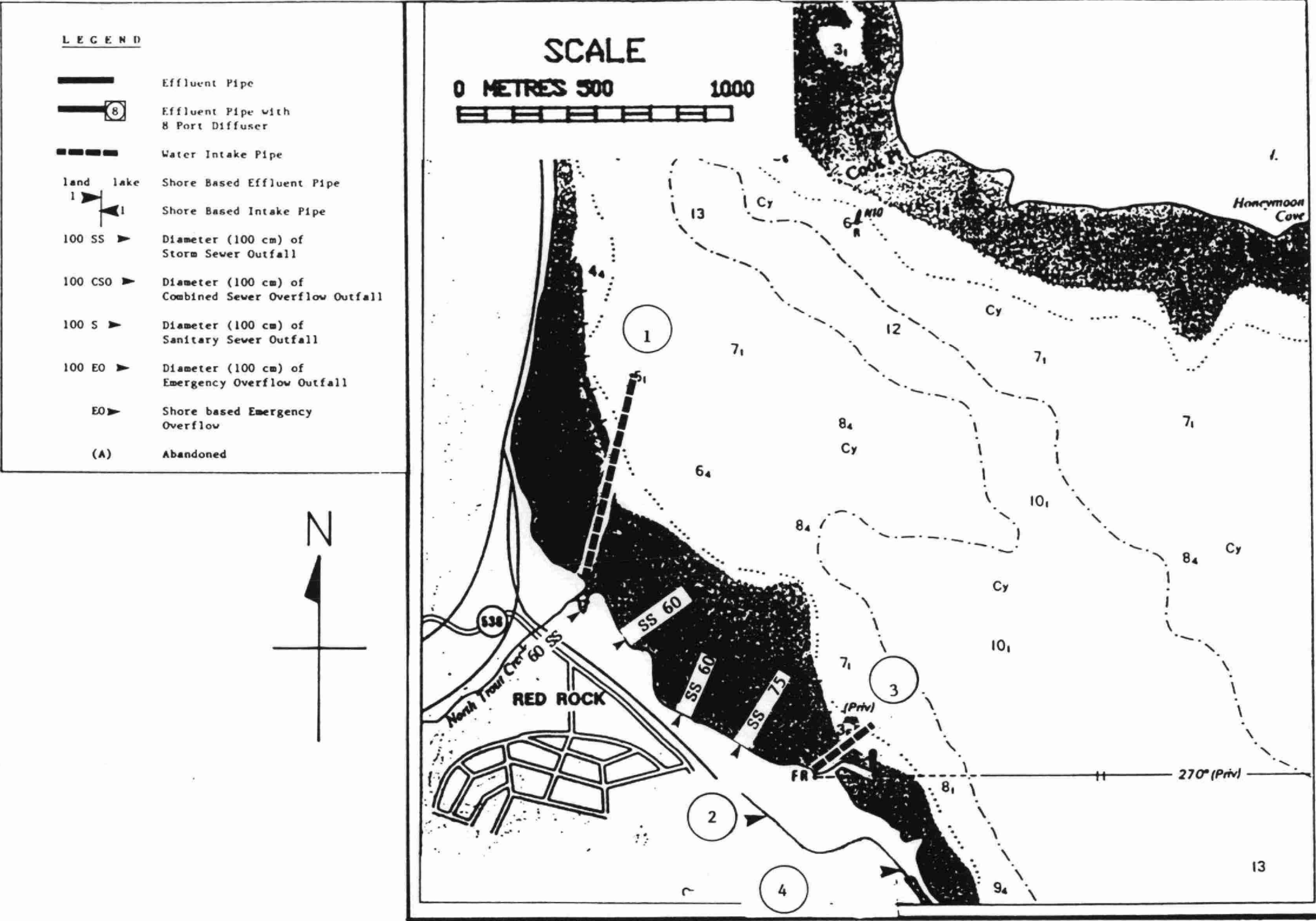
-  Effluent Pipe
-  Effluent Pipe with 8 Port Diffuser
-  Water Intake Pipe
-  land lake Shore Based Effluent Pipe
-  Shore Based Intake Pipe
-  100 SS Diameter (100 cm) of Storm Sewer Outfall
-  100 CSO Diameter (100 cm) of Combined Sewer Overflow Outfall
-  100 S Diameter (100 cm) of Sanitary Sewer Outfall
-  100 EO Diameter (100 cm) of Emergency Overflow Outfall
-  EO Shore based Emergency Overflow
-  (A) Abandoned

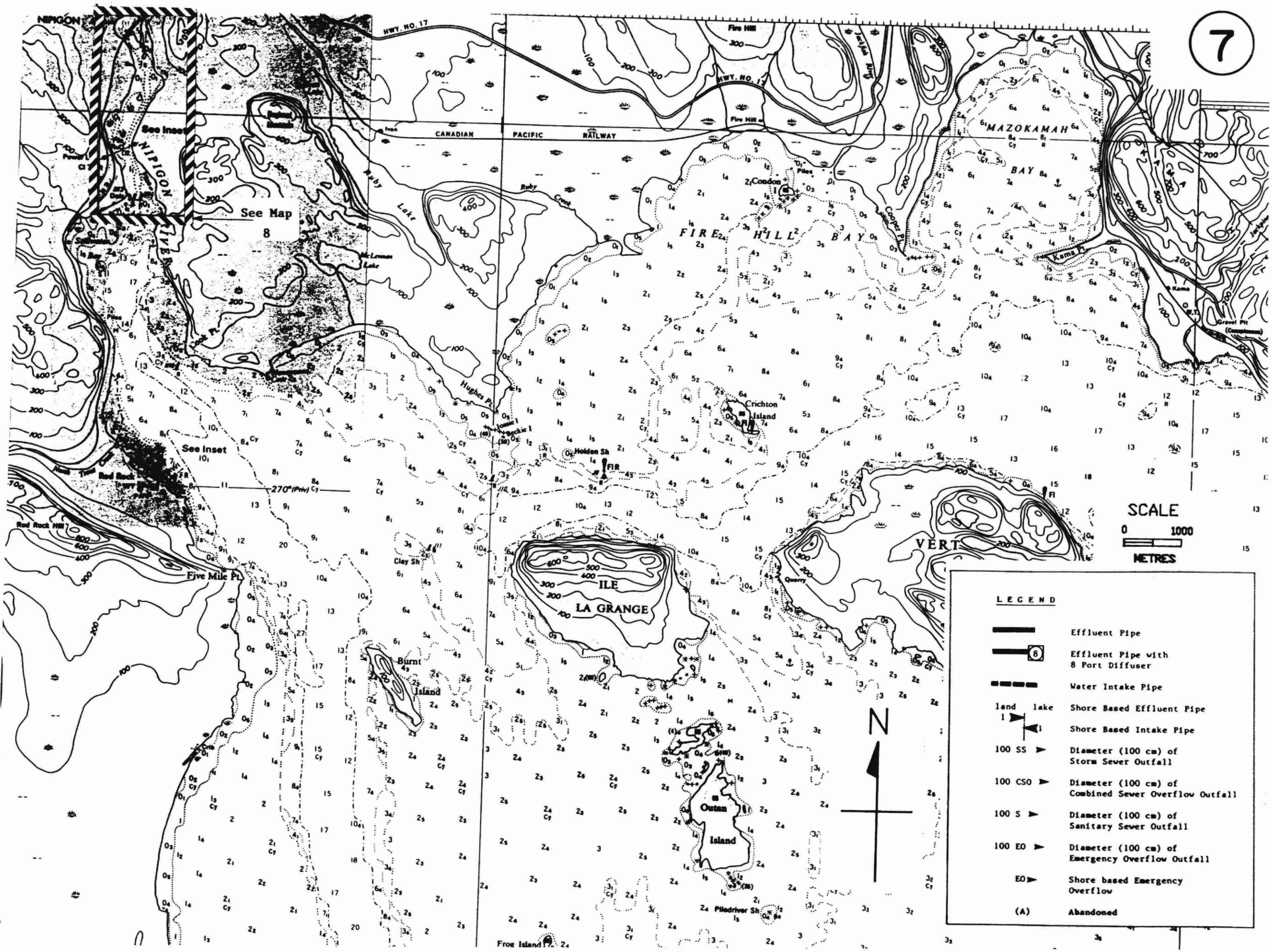
SCALE
0 METRES 500 1000





Name	Red Rock WTP	Red Rock WPCP	Domtar Packaging Ltd.	Domtar Packaging Ltd.			
Intake/Outfall	Intake	Outfall	Intake	Outfall			
DMIS/IMIS No.	2200000193	120001817	0000140202	0000140202			
Structure No.	1	2	3	4			
Map Number	6	6	6	6			
Operating Authority	MUN	MUN	IND	IND			
Location	Red Rock	Red Rock	Red Rock	Red Rock			
Supplier/Receiver	Nipigon Bay	Nipigon Bay	Nipigon Bay	Nipigon Bay			
Point of Discharge		Embayment		Embayment			
Terminal Basin	Lake Superior	Lake Superior	Lake Superior	Lake Superior			
Activity	Municipal Water Treatment	Municipal Sewage Treatment	Pulp and Paper Production Corrugated cardboard and newsprint	Pulp and Paper Production Corrugated cardboard and newsprint			
Process Type	Physical and Chemical Treatment	Primary Treatment	Logs & chips made into paper via Kraft process and Ground Wood process	Logs & chips made into paper via Kraft process and Ground Wood process			
Supply/Discharge Type	Continuous	NA	Continuous	Continuous			
Treatment Type	Clarification, Filtration Chlorination, Fluoridation	Clarification, grit removal, chlorination in summer, sludge digested anaerobically & trucked to drying ponds	Screening	Primary Clarifier			
Comments	Mainly for Potable Water Usage	Effluent joins Domtar Effluent Outfall		Three effluent streams combine at creek			
Design Flow (1000m3/day)	2.30	1.13	115.00	109.00			
Mean Annual Flow (1000m3/day)	0.72	0.75	92.00	92.00			
Pipe length from shore (m)	760.00	0.00	283.00	0.00			
Pipe Diameter (cm)	38.00	53.00	79.00	NA			
Water Depth at end of pipe (m)	10.00	NA	14.50	NA			
Water depth above end of pipe (m)	8.00	NA	13.50	NA			
Diffuser		NO		NO			
Number of ports							

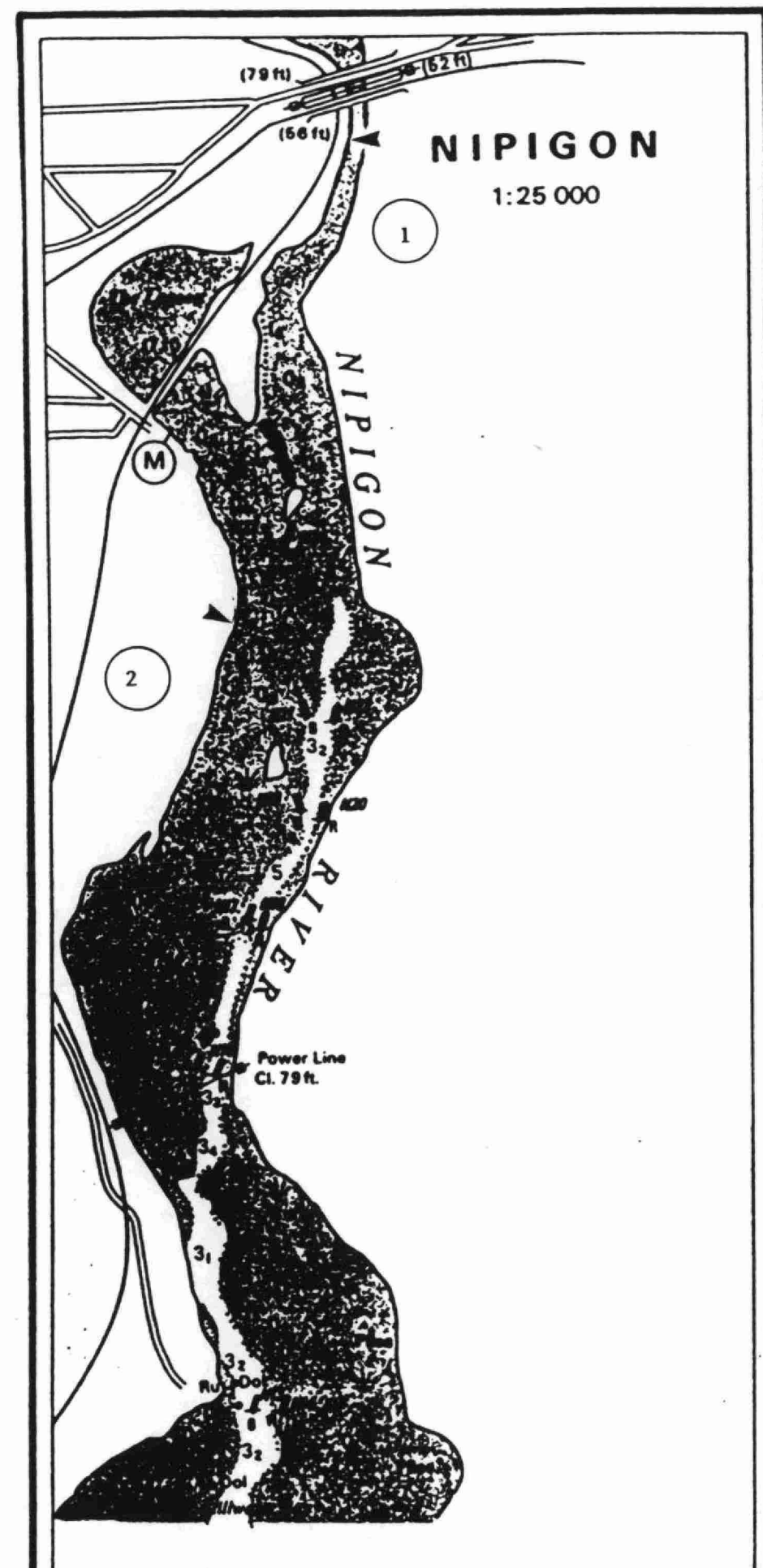




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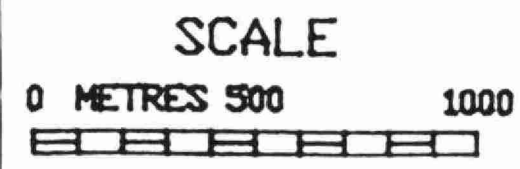
- Effluent Pipe
- Effluent Pipe with 8 Port Diffuser
- Water Intake Pipe
- Shore Based Effluent Pipe
- Shore Based Intake Pipe
- Diameter (100 cm) of Storm Sewer Outfall
- Diameter (100 cm) of Combined Sewer Overflow Outfall
- Diameter (100 cm) of Sanitary Sewer Outfall
- Diameter (100 cm) of Emergency Overflow Outfall
- Shore based Emergency Overflow
- Abandoned

Name	Wipigon WTP	Wipigon STP					
Intake/Outfall	Intake	Outfall					
UMIS/IMIS No.	NA	120000514					
Structure No.	1	2					
Map Number	8	8					
Operating Authority	MUN	MUN					
Location	Wipigon	Wipigon					
Supplier/Receiver	Wipigon River	Wipigon River					
Point of Discharge		River Mouth					
Terminal Basin	Lake Superior	Lake Superior					
Activity	Municipal Water Treatment	Municipal Sewage Treatment					
Process Type	Physical and Chemical Treatment	Primary Treatment					
Supply/Discharge Type	Continuous	Continuous					
Treatment Type	Filtration and Chlorination	Digester and Summer Chlorination					
Comments							
Design Flow (1000m3/day)	4.50	1.08					
Mean Annual Flow (1000m3/day)	1.35	NA					
Pipe length from shore (m)	25.00	5.00					
Pipe Diameter (cm)	30.00	37.50					
Water Depth at end of pipe (m)	8.00	1.00					
Water depth above end of pipe (m)	7.00	NA					
Diffuser		NO					
Number of ports							

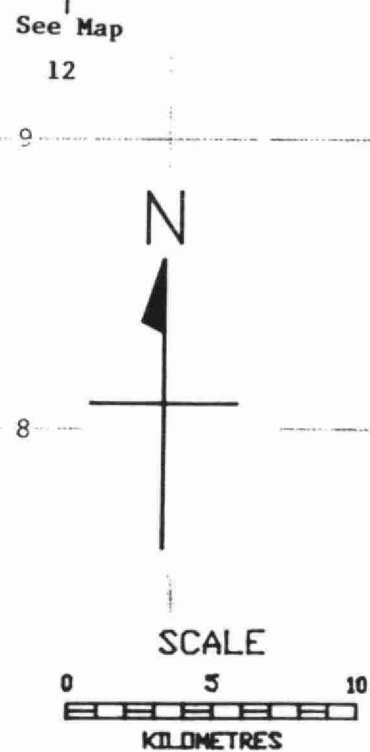


LEGEND

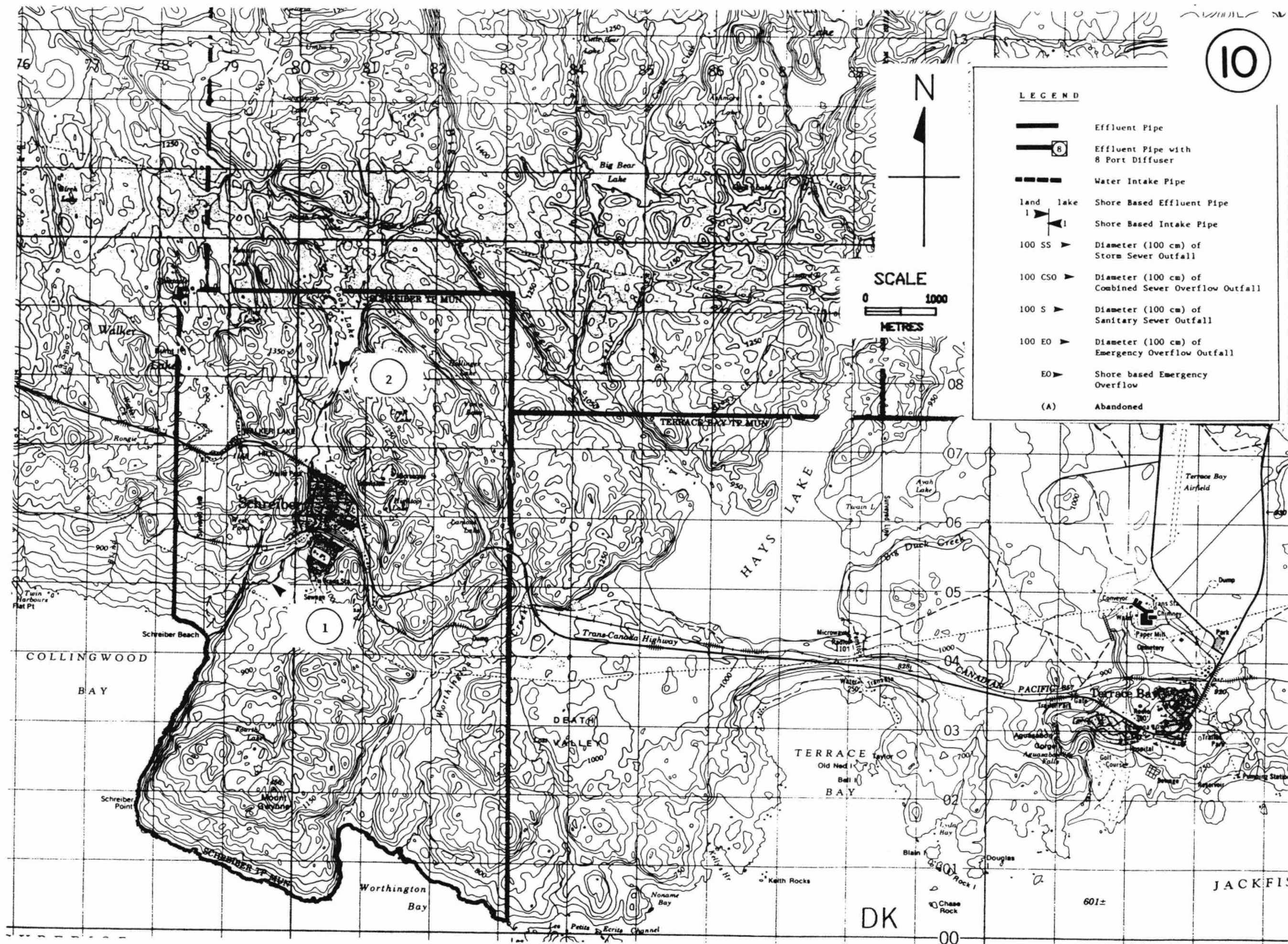
	Effluent Pipe
	Effluent Pipe with 8 Port Diffuser
	Water Intake Pipe
	Shore Based Effluent Pipe
	Shore Based Intake Pipe
100 SS >	Diameter (100 cm) of Storm Sewer Outfall
100 CSO >	Diameter (100 cm) of Combined Sewer Overflow Outfall
100 S >	Diameter (100 cm) of Sanitary Sewer Outfall
100 EO >	Diameter (100 cm) of Emergency Overflow Outfall
EO >	Shore based Emergency Overflow
(A)	Abandoned



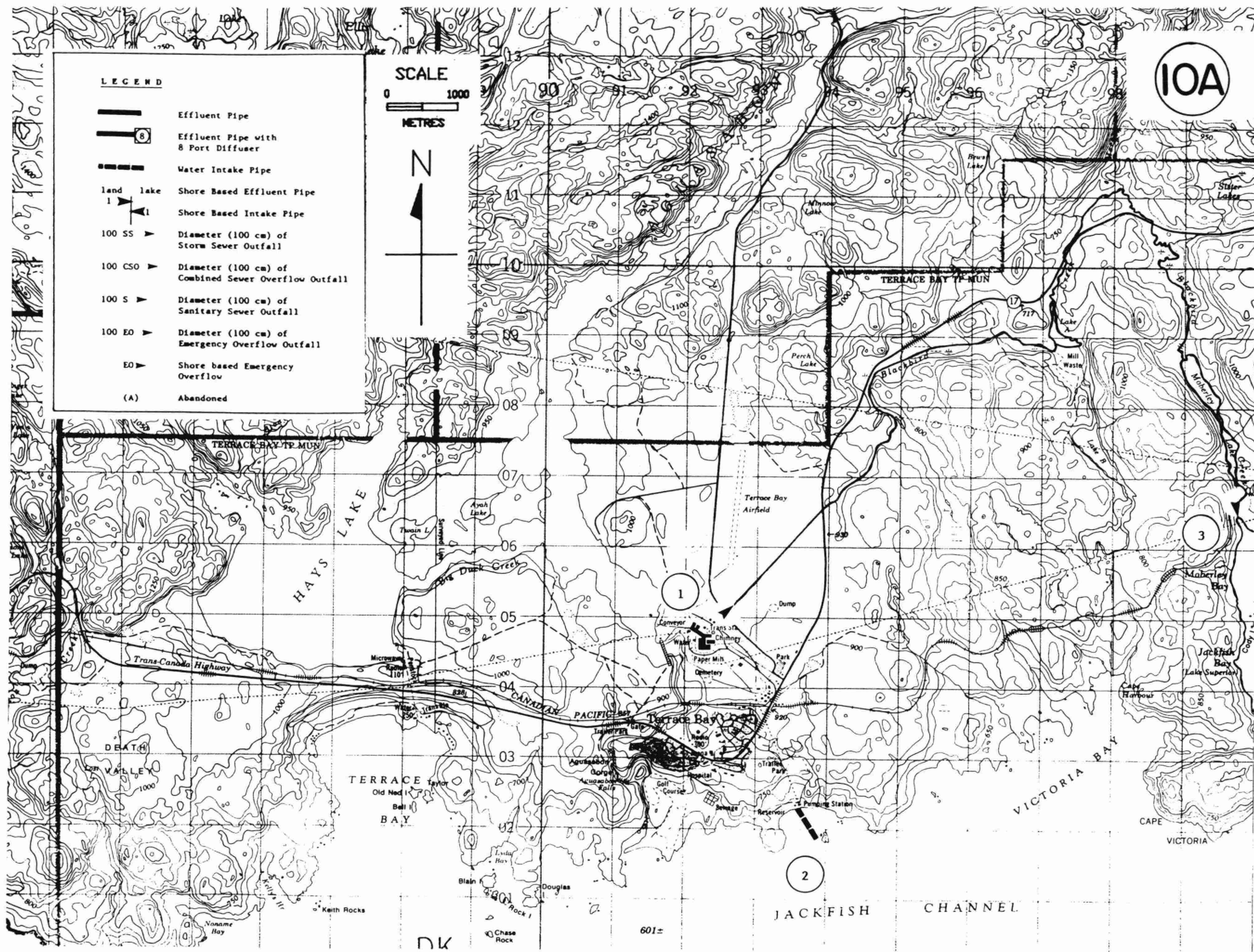
	Effluent Pipe
	Effluent Pipe with 8 Port Diffuser
	Water Intake Pipe
	Shore Based Effluent Pipe
	Shore Based Intake Pipe
100 SS	Diameter (100 cm) of Storm Sewer Outfall
100 CSO	Diameter (100 cm) of Combined Sewer Overflow
100 S	Diameter (100 cm) of Sanitary Sewer Outfall
100 EO	Diameter (100 cm) of Emergency Overflow Outfall
EO	Shore based Emergency Overflow
(A)	Abandoned



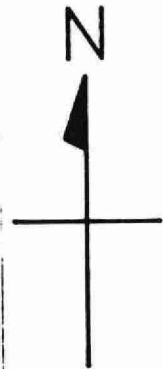
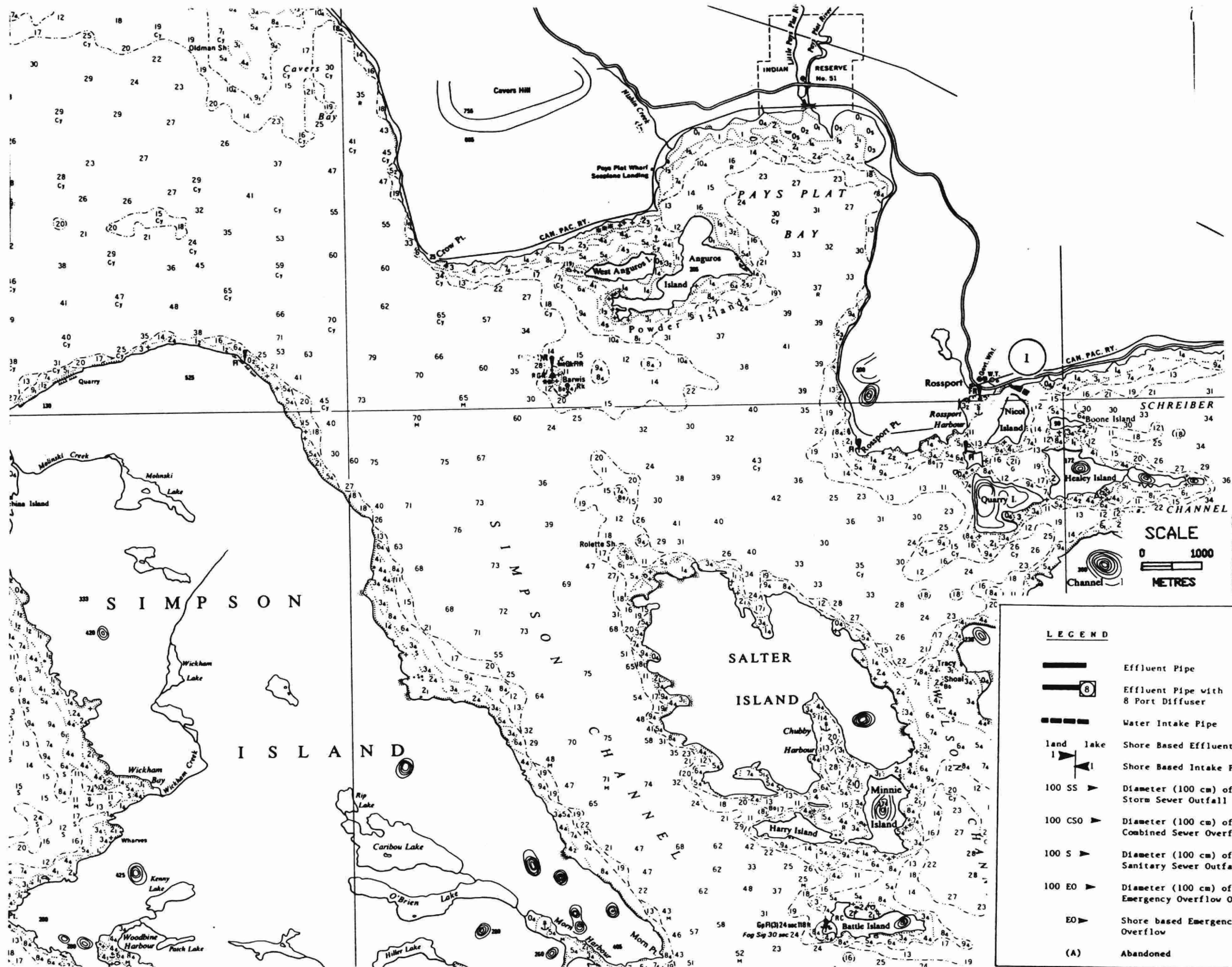
Name	Schreiber STP	Schreiber WTP					
Intake/Outfall	Outfall	Intake					
UMIS/IMIS No.	110002112	NA					
Structure No.	1	2					
Map Number	10	10					
Operating Authority	MOE	MOE					
Location	Schreiber	Schreiber					
Supplier/Receiver	Cook Lake Creek	Cook Lake					
Point of Discharge	River Mouth						
Terminal Basin	Lake Superior	Lake Superior					
Activity	Municipal Sewage Treatment	Municipal Water Treatment					
Process Type	Secondary Treatment	Physical and Chemical Treatment					
Supply/Discharge Type	Continuous	Continuous					
Treatment Type	Activated Sludge Extended Aeration Seasonal Chlorination	Pressure Filters Chlorination					
Comments		Sludge from filters sent to sewage treatment Plant					
Design Flow (1000m3/day)	1.14	9.43					
Mean Annual Flow (1000m3/day)	0.80	2.12					
Pipe length from shore (m)	0.30	0.00					
Pipe Diameter (cm)	30.00	40.00					
Water Depth at end of pipe (m)	0.40	NA					
Water depth above end of pipe (m)	0.00	NA					
Diffuser	NO						
Number of ports							



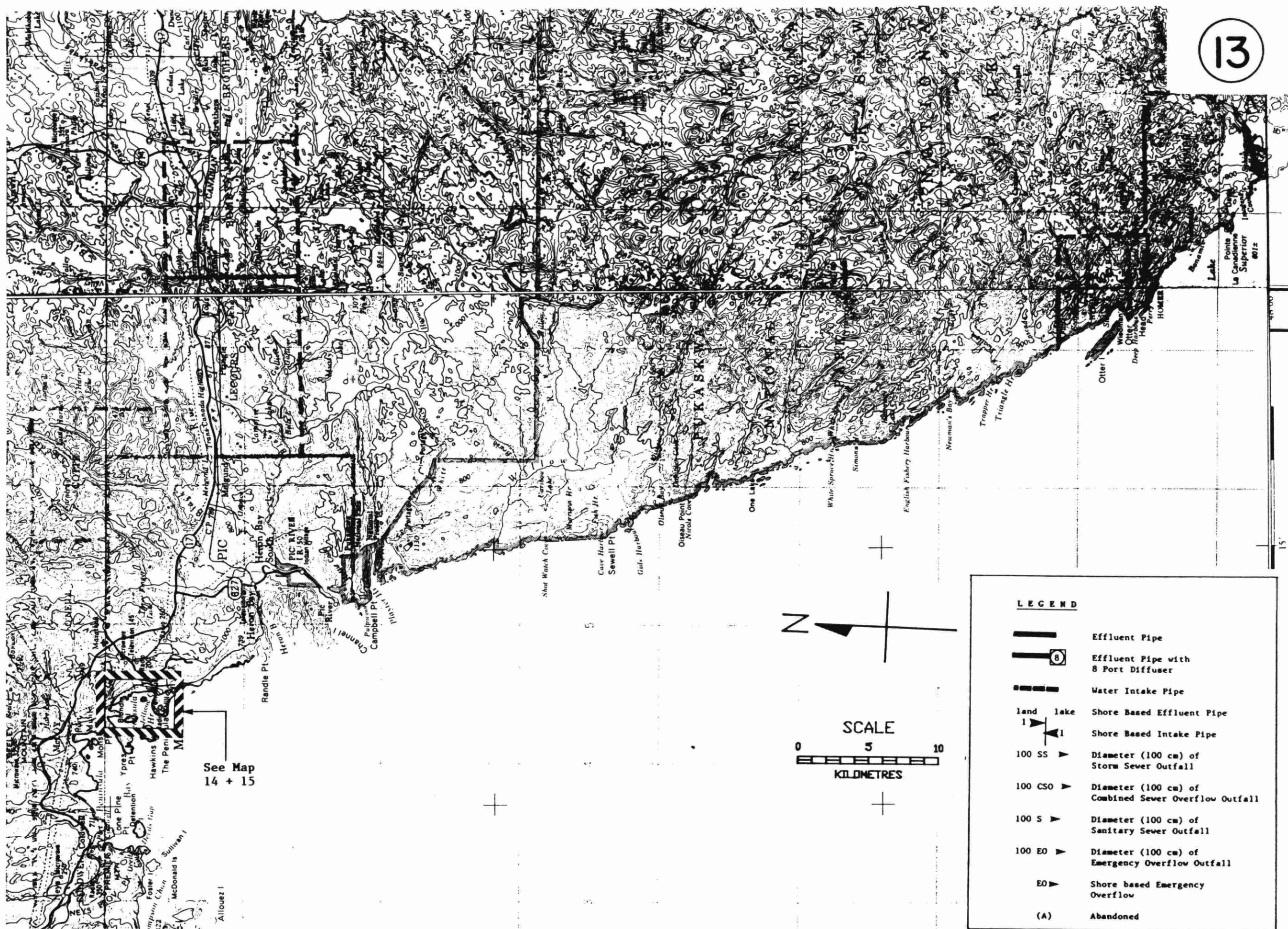
Name	Kimberly Clark Can. Ltd	Kimberly Clark Can. Ltd	Kimberly Clark Can. Ltd				
Intake/Outfall	Outfall	Intake	Outfall				
UMIS/IMIS No.	0000830000	0000830000	0000830000				
Structure No.	1	2	3				
Map Number	10A	10A	10A				
Operating Authority	IND	IND	IND				
Location	Terrace Bay	Terrace Bay	Terrace Bay				
Supplier/Receiver	Creek to Moberley Bay	Lake Superior	Creek to Moberley Bay				
Point of Discharge	River Mouth		River Mouth				
Terminal Basin	Lake Superior	Lake Superior	Lake Superior				
Activity	Pulp Production	Pulp Production	Pulp Production				
Process Type	Bleached Kraft Process	Bleached Kraft Process	Bleached Kraft Process				
Supply/Discharge Type	Continuous	Continuous	Continuous				
Treatment Type	Effluent Clarifiers Sanitary Sewage Treatment Plant	Screening and Chlorination	Effluent Clarifiers Sanitary Sewage Treatment Plant				
Comments	Distance from point of discharge to Moberly Bay is approximately 15.5 km		Final effluent discharge to Lake Superior Same discharge stream as Map 10, Structure #3				
Design Flow (1000m3/day)	170.00	170.00	170.00				
Mean Annual Flow (1000m3/day)	120.00	120.00	120.00				
Pipe length from shore (m)	NA	500.00	NA				
Pipe Diameter (cm)	NA	122.00	NA				
Water Depth at end of pipe (m)	NA	14.00	NA				
Water depth above end of pipe (m)	NA	12.00	NA				
Diffuser	NO						
Number of ports							



Name	Rossport WTP						
Intake/Outfall	Intake						
DMIS/IMIS No.	210003551						
Structure No.	1						
Map Number	11						
Operating Authority	MUN						
Location	Rossport						
Supplier/Receiver	Lake Superior						
Point of Discharge							
Terminal Basin	Lake Superior						
Activity	Municipal Water Treatment						
Process Type							
Supply/Discharge Type	Continuous						
Treatment Type	Chlorination						
Comments							
Design Flow (1000m3/day)	0.11						
Mean Annual Flow (1000m3/day)	0.81						
Pipe length from shore (m)	304.00						
Pipe Diameter (cm)	20.32						
Water Depth at end of pipe (m)	10.67						
Water depth above end of pipe (m)	10.67						
Diffuser							
Number of ports							



LEGEND	
	Effluent Pipe
	Effluent Pipe with 8 Port Diffuser
	Water Intake Pipe
	Shore Based Effluent Pipe
	Shore Based Intake Pipe
	Diameter (100 cm) of Storm Sewer Outfall
	Diameter (100 cm) of Combined Sewer Overflow Outfall
	Diameter (100 cm) of Sanitary Sewer Outfall
	Diameter (100 cm) of Emergency Overflow Outfall
	Shore based Emergency Overflow
	Abandoned

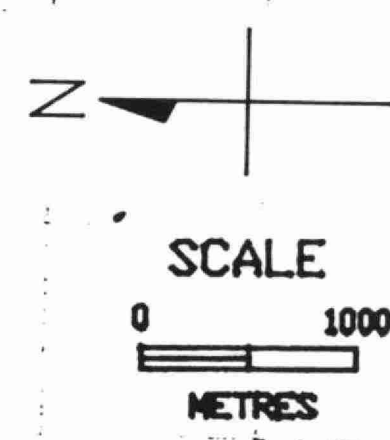
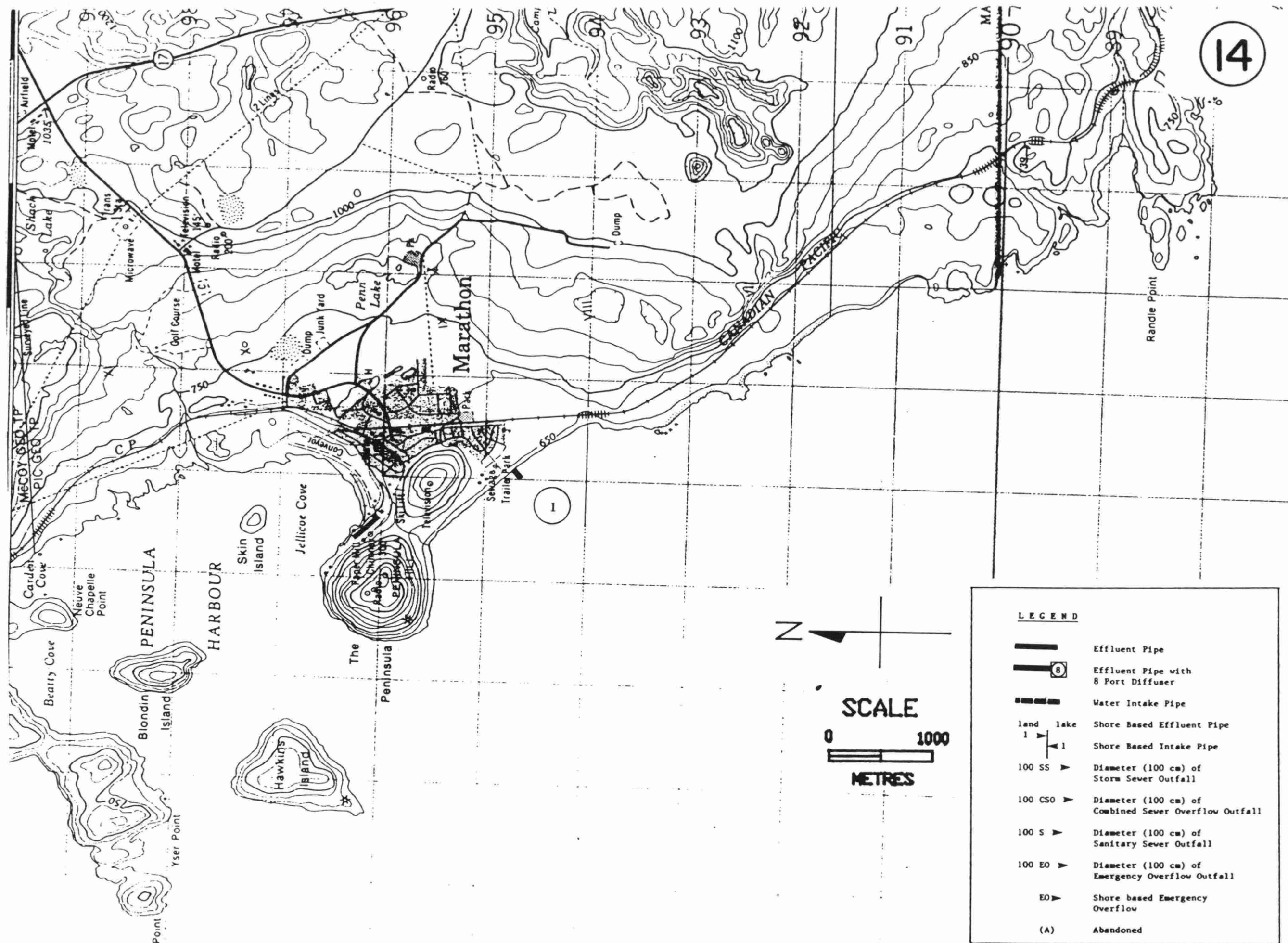


See Map
14 + 15

LEGEND

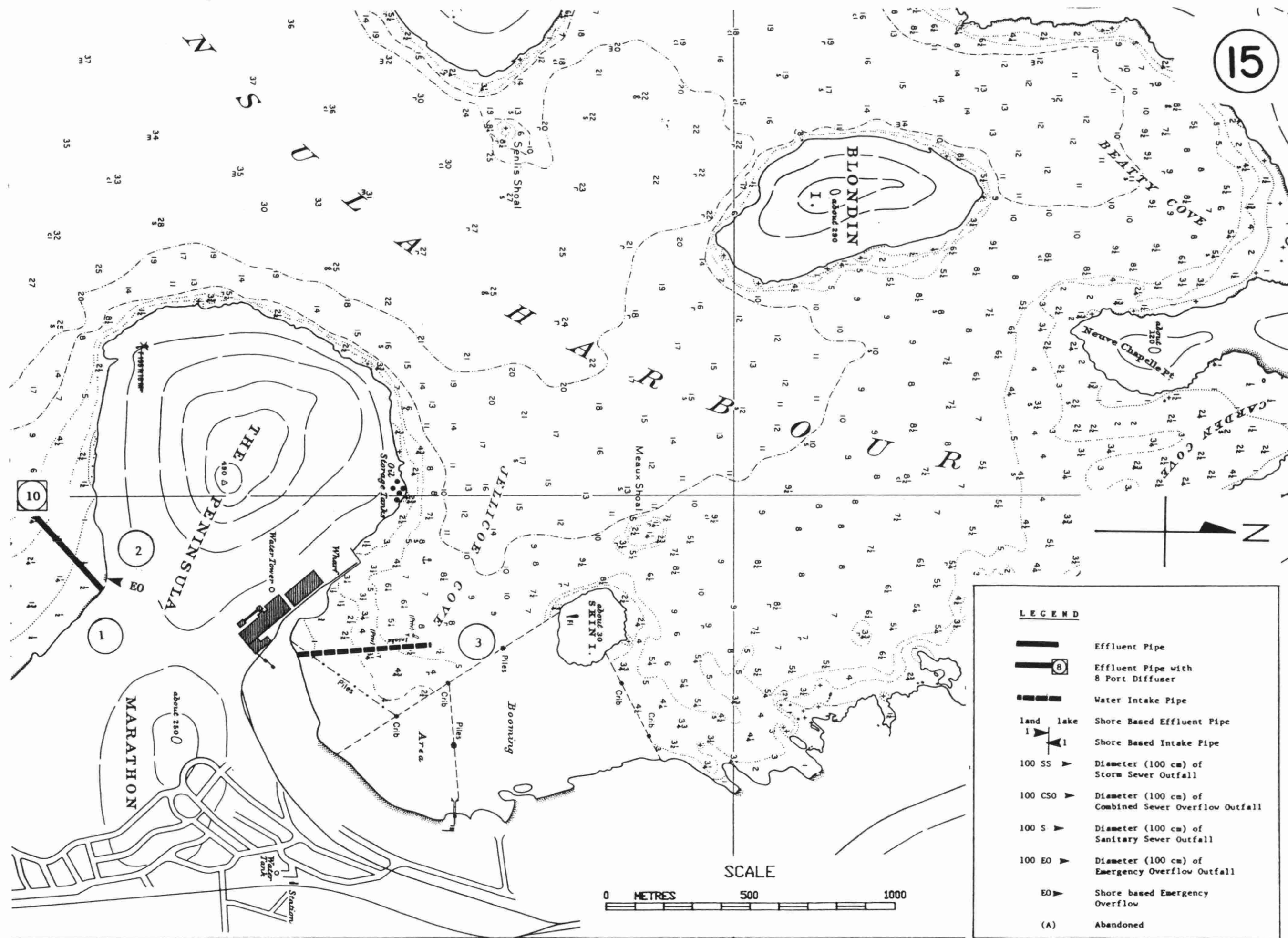
	Effluent Pipe
	Effluent Pipe with 8 Port Diffuser
	Water Intake Pipe
	Shore Based Effluent Pipe
	Shore Based Intake Pipe
100 SS >	Diameter (100 cm) of Storm Sewer Outfall
100 CSO >	Diameter (100 cm) of Combined Sewer Overflow Outfall
100 S >	Diameter (100 cm) of Sanitary Sewer Outfall
100 EO >	Diameter (100 cm) of Emergency Overflow Outfall
EO >	Shore based Emergency Overflow
(A)	Abandoned

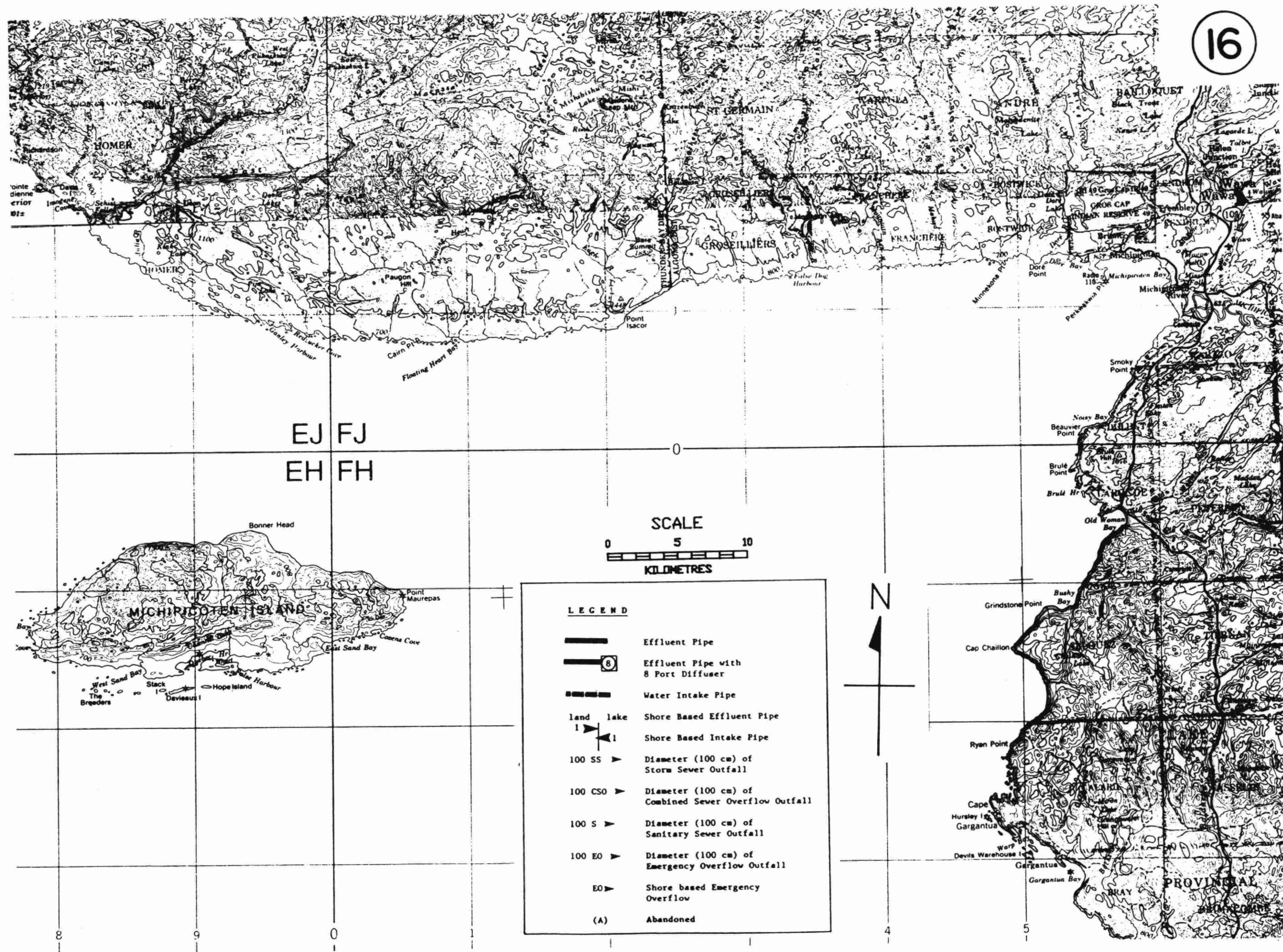
Name	Marathon STP						
Intake/Outfall	Outfall						
UNIS/IMIS No.	NA						
Structure No.	1						
Map Number	14						
Operating Authority	MOE						
Location	Marathon						
Supplier/Receiver	Lake Superior						
Point of Discharge	Offshore						
Terminal Basin	Lake Superior						
Activity	Municipal Sewage Treatment						
Process Type	Secondary Treatment						
Supply/Discharge Type	Continuous						
Treatment Type	Activated Sludge						
	Extended Aeration						
	Seasonal Chlorination						
Comments							
Design Flow (1000m3/day)	4.54						
Mean Annual Flow (1000m3/day)	1.50						
Pipe length from shore (m)	122.00						
Pipe Diameter (cm)	5.00						
Water Depth at end of pipe (m)	5.00						
Water depth above end of pipe (m)	2.00						
Diffuser	NO						
Number of ports							



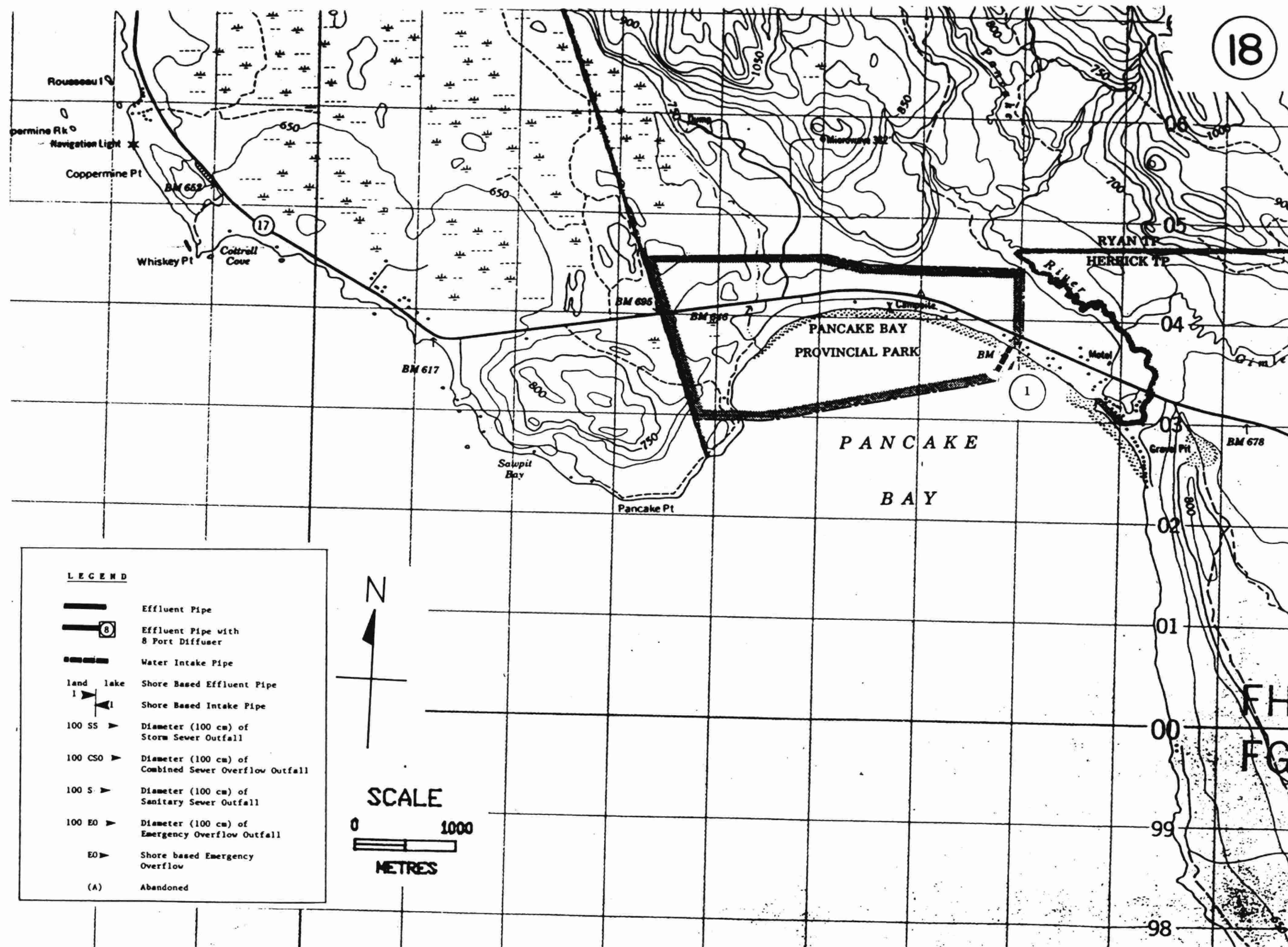
LEGEND	
	Effluent Pipe
	Effluent Pipe with 8 Port Diffuser
	Water Intake Pipe
	Shore Based Effluent Pipe
	Shore Based Intake Pipe
100 SS	Diameter (100 cm) of Storm Sewer Outfall
100 CSO	Diameter (100 cm) of Combined Sewer Overflow Outfall
100 S	Diameter (100 cm) of Sanitary Sewer Outfall
100 EO	Diameter (100 cm) of Emergency Overflow Outfall
EO	Shore based Emergency Overflow
(A)	Abandoned

Name	James River-Marathon Ltd.		James River-Marathon Ltd.	James River-Marathon Ltd.			
Intake/Outfall	Outfall		Outfall	Intake			
UNIS/IMIS No.	0000850008		0000850008	0000850008			
Structure No.	1		2	3			
Map Number	15		15	15			
Operating Authority	IND		IND	IND			
Location	Marathon		Marathon	Marathon			
Supplier/Receiver	Lake Superior		Lake Superior	Jellicoe Cove			
Point of Discharge	Offshore		Shore				
Terminal Basin	Lake Superior		Lake Superior	Lake Superior			
Activity	Pulp Production		Pulp Production	Pulp Production			
Process Type	Kraft Pulping and Bleaching						
Supply/Discharge Type	Continuous		Batch	Continuous			
Treatment Type	Primary Clarifier		Primary Clarifier	Travelling Screen			
Comments			Emergency Overflow Outfall				
Design Flow (1000m3/day)	NA		NA	NA			
Mean Annual Flow (1000m3/day)	64.50		64.50	67.60			
Pipe length from shore (m)	323.10		0.00	472.40			
Pipe Diameter (cm)	91.40		91.40	122.00			
Water Depth at end of pipe (m)	12.20		0.00	13.10			
Water depth above end of pipe (m)	8.80		0.00	10.70			
Diffuser	YES		NO				
Number of ports	10						





Name	Pancake Bay Prov. Park					
Intake/Outfall	Intake					
UMIS/IMIS No.	NA					
Structure No.	1					
Map Number	18					
Operating Authority	MNR					
Location	Pancake Bay					
Supplier/Receiver	Pancake Bay					
Point of Discharge						
Terminal Basin	Lake Superior					
Activity	Provincial Park Water Treatment					
Process Type	Chemical Treatment					
Supply/Discharge Type	Seasonal					
Treatment Type	Chlorination					
Comments						
Design Flow (1000m3/day)	0.13					
Mean Annual Flow (1000m3/day)	NA					
Pipe length from shore (m)	76.20					
Pipe Diameter (cm)	7.50					
Water Depth at end of pipe (m)	3.04					
Water depth above end of pipe (m)	3.00					
Diffuser						
Number of ports						



	Effluent Pipe
	Effluent Pipe with 8 Port Diffuser
	Water Intake Pipe
	Shore Based Effluent Pipe
	Shore Based Intake Pipe
100 SS 	Diameter (100 cm) of Storm Sewer Outfall
100 CSO 	Diameter (100 cm) of Combined Sewer Overflow Outfall
100 S 	Diameter (100 cm) of Sanitary Sewer Outfall
100 EO 	Diameter (100 cm) of Emergency Overflow Outfall
EO 	Shore based Emergency Overflow
(A)	Abandoned



(16134)

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